DOMESTIC ENGINEERING

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Wanted—A National Sanitary University and a National Board of Health

We are a sanitary people. It must be true, because we ourselves admit it. We are a fighting sanitary people. We fight drinking-cups, roller-towels, kissing, public and private, and any other fightable thing that the medical practitioner may conjure into our notice.

At the same time, we are often unbalanced in our fighting. We commit ourselves to a policy the after-effects of which are often disregarded. The public drinking-cup, for instance, has been demonstrated to be a menace to public health. Immediately every one commenced to fight the drinking-cup evil. This was good, and "Domestic Engineering" took its share in the fighting. Our lack of balance was shown in the inadequate form of the laws enforcing the individual drinking cup. No provision, whatever, was made for the relief of public thirst, as should have been done. The railway companies removed the public drinking-cup, according to the law, and left the travelers to fend for themselves in assuaging their thirst. They were at the mercy of the train-peddler, who conscientiously charged 25 cents for a drinking-cup which could be secured for 15 cents anywhere else. We had for weeks the distressing spectacle of thousands of travelers unprovided with drinking apparatus and many of them unable to afford the quarter for one drink on a brief journey. We did not go far enough. Good drinking-cups made of paper were available at the time, and might have been purchased for 1 cent. We tore down something, but did not build up in its place. Doubtless before long laws will be passed demanding that paper drinking-cups at a reasonable cost shall be available at any public drinking-place, and we shall be doing then what should have been provided for in the original form of the new drinking-cup law. Maybe we will not need paper drinking-cups, but will be able to demand bubble fountain cups. In any case, there will be a substitute. In many things we, as a people, are deficient in this regard. We fight without counting the full cost.

What is needed at the present time is a national sanitary university, a source of sanitary thinking, a directive agency of sanitary effort, a controller of national sanitary activities. We have not got it. We have, here and there, various forms of departments of health. Some of them are effective and many more are useless. Some are in charge of advanced sanitarians. The majority are in the hands of bakers, tinkers and candle-stick makers. The village doctor, grocer and politician can compose at the present time a board of health, if a board of health is asked for by the local popular fancy. Such a trinity can overrule the practical knowledge of an effective plumbing inspector or capable master plumbers. They can hinder the performance of good work. They themselves are as great a menace as any public drinking-cup. We have got to clean house nationally.

Cuba is the only country that possesses a national department of health. The formation of that valuable department was largely due to the efforts of Col. Kean. The working of the department was clearly set forth at the annual meeting of the American Public Health Association at Milwaukee last September. The sanitary department of Cuba employs a member of the cabinet, who acts as secretary of sanitation-work, and has general charge of it. The work is divided into two branches, one relating to sanitation and the other to charity. Between these branches and the secretary there intervenes what is known as a superior board of health. This superior board of health acts as an advisory board to recommend whatever measures it may deem necessary. The personnel of this board includes delegates from the different branches of the sanitary office and from all bodies interested and active in public health work. Every municipality has an officer in charge who represents the commissioner of health. In this way the national board can call to its assistance the practical knowledge of the heads of all forces engaged in the maintenance of public sanitation, and through this harmony of operation laws can be devised which will not be one-sided but which shall be so framed that they will cover every need of the case in question.

In England, while the country does not possess a national board of health, it does have one of the greatest institutions safe-guarding national health, namely, the Royal Sanitary Institute, whose headquarters are in London. The object of the Royal Sanitary Institute is stated to be to promote the advancement of sanitary science in all or any of its branches, and to diffuse knowledge relating thereto. The institute is under royal patronage and has for its presiding officers leading members of the nobility. It is governed by a council of 31 members, consisting of the leading men in medicine, engineering, architecture, law and other professions. It is supported by donations, annual fees of members and associates, and examination-fees of candidates. At the sessions of the institute papers are presented and subjects are discussed relating to the sanitary needs of the time. The institute possesses a museum and an extensive library, and holds courses of lectures and demonstrations specially adapted for the preparation of candidates offering themselves for examination.

We need a national sanitary institute of this kind. We need a national department of health. They should be strictly national. They should not depend for their vitality upon whether the Republican or the Democratic party goes into office. They should not be, as so many of our health commissions are at the present time, at the mercy of political tides. At the present time, sanitary subjects are dealt with in a haphazard way by different institutions, without any concerted action. Medical colleges dabble with sanitation, and produce meat inspectors and milk inspectors, but not sanitary engineers. They turn out by the hundreds doctors of sufficiently low caliber for us to be doubtful of their value as members of any local board of health. We have no recognized source from which we may draw men of established competency. When we demand examination for sanitary inspectors, the examination-papers are prepared often by men whose ability to answer the questions they ask might in itself be subject to question, or else the questions are of such a low grade that the examination becomes a farce. For instance, one of the leading questions in an examination-paper offered to plumbers not long ago was: "What is a gargoyle?" Nobody answered, and the examiners were satisfied to forget that it had ever been asked. What kind of an idiot proposed that question to a plumber? Why did they not also submit the following questions: "What is a pliosaurus? Give a list of the chief habits of the mantis? State weather conditions at the South Pole?" If questions only are needed, surely any of these could be used to fill up.

As stated some time ago in our columns, there is a movement to secure a national board of health, but it should not be allowed to go through unless with its establishment or creation, provision is made for an educational sanitary institution, from which suitable men can be drawn, capable of carrying out the laws framed by the national board of health. Furthermore, such an institution should be the source from which as years went on would be drawn the heads of the national and state boards of health. These two must be co-operative.

At the present time, most of the sanitary officers in our towns and cities acquire their knowledge of sanitation after they have got the job. This is true of many other municipal appointments, such as paving-inspectors, appointed to the position and unable to tell the difference between cedar block and asphalt. Such a position was secured some years ago in one of the first four leading cities of the United States through the instrumentality of a note which said: "Kindly give this man a job in your city department. He has been of some service to me in Nebraska." And he was made paving-inspector. (He had just emerged from jail after conviction of grafting.) Such political appointments are due to that characteristic outlined in the beginning of this talk—that of being able to tear down without thought of building up, and endeavoring to build up without thought of foundations. Fortunately, we have sanitary inspectors and health commissioners whose whole life is devoted to an intelligent study of sanitary problems they encounter daily, and who are achieving a national reputation for the effectiveness of their work. They are few, however, and are hampered by having to draw their assistants from unreliable sources.

The object of this editorial is to ask you as a worker in sanitary fields to study carefully every movement that is made toward the evolution of a national sanitary body. If it is launched with faulty construction, the errors it may commit will prove to be a millstone on the neck of your industry. The stake is too high to be thrown for carelessly. We do not want any loaded dice in the game. It is possible to bring about the establishment of an institution which shall have as much stability as the same institutions maintained by and controlling other industries, such as mechanical engineering, electricity, etc. Those engaged in the plumbing trade have hitherto been too self-centered to keep vigilant guard over their interests. They have been too busy watching their fellow-craftsmen to take knowledge of what is being done to them by those who have no particular affiliation with them, but see in them an opportunity for additional gain. The National Association of Master Plumbers, the state associations of master plumbers, the American Society of Inspectors of Plumbing and Sanitary Engineers, should unite in their various committees' work, and formulate a definite basis for the establishment of the national board of health and the national sanitary educational institution. Nobody is more interested in such establishment than they are, and there is danger that

it may be precipitated ill-advisedly, without consultation with any of these bodies whatever. It is to be hoped that steps will be taken immediately by the appointment of special vigilance committees, which will incessantly watch the progress of this movement, directing it if possible, and preventing any political maneuvering which might wreck hopes of its successful operation.

THE TEN PER-CENT CREDIT SYSTEM.

Its Effect in Cities Where Now Operative.

Frank S. Hanley, secretary of the Eastern Supply Association, has just published a booklet entitled the "Ten Per Cent. Credit System, Its Effect in Cities Where It Is Now Operative," being letters from two jobbers, one in Indianapolis and the other in Minneapolis. This subject has attracted so much attention from many of our readers that we are sure that they will be interested in these letters. In his introduction to the letters Mr. Hanley says: "So much interest was manifested in the 'Ten Per Cent. Credit System' by members of the Eastern Supply Association at its meeting in New York, February 8, 1911, when the interesting remarks made by the members of the Central Supply Association, at their October, 1910, meeting were considered, that it has been deemed advisable to secure from Jobbers, in cities where the plan is operative, letters in regard to its application and its effect on the trade in their respective sections. The splendid results obtained through this plan would seem a sufficient incentive to induce eastern jobbers to give the matter earnest and careful consideration." The letters follow herewith in full:

Indianapolis, Ind.

Your letter to hand, and will say that it is a pleasure to me to help you, if I possibly can, with any data regarding what is known as the 10 per cent. credit system which we have in effect in Indianapolis, and have had for two years, and which the jobbers, and especially the plumbing and heating trade, consider the greatest thing in our line.

The foundation between the trade and the jobber regarding the 10 per cent credit arrangement must lie in the fact that the trade knows it to be true that the jobber does not play any favorites in the plumbing and heating trade. You must treat your trade when it comes to the matter of settlements all alike and without any elasticity whatsoever. If your discount date is the 15th of each month following the month of purchase, you must impress upon your trade and force them to pay upon that date, and even if they should want to pay on the 16th they should be made to pay the face of the invoice and no discount. When the entire trade knows there is no elasticity and that all are placed on the same basis, then you will have the foundation to make a success of this arrangement. The same arrangement can be ruined by the jobber playing fast and loose, but it can be ruined much quicker by the plumber not having confidence in the truthfulness of the jobber.

You can take it from the side of the larger shops in the trade, and they have found benefits which they did not expect to get by the 10 per cent. credit arrangement. For instance, the shops that had an investment permitting them to do flats, school buildings, hotels and jobs of this nature were continually harrassed by small shops which did not have half the capital to carry on jobs of this size, but with the assistance of the jobbers, who would take chances, they would make a competitor for the reliable shops of men who were not financially responsible by half to do jobs that they had contracted for. It has proven, and I think holds good in all cities, that no man can make money at any job which is beyond his means, and that where the trade takes contracts which they cannot handle with their own money, and can handle only with unlimited credit, and worst of all unlimited time, which jobbers extend them, this kind of a contractor sooner or later will fail. By having the 10 per cent credit arrangement, and with the credit limit which is necessary on account of having the credit arrangement, the plumbing and heating trade must demand that their shops must be their own backing, and do the work which their investment will let them do each and every 30 days. You will find in this way that the larger shops will have less competition on the larger jobs, and it will be clean competition, for a man does not care if he loses a job to a competitor who he knows has as much money as he has, but what hurts is losing a job to a competitor who, he knows, has not half the money to carry the job to completion without the assistance of the supply-house.

You will find that this will help the small shops, and in a short time the big shops will be busy with the large jobs and the small shops will not be continually figuring against the larger, which will take on small jobs enough to keep their organization running when there isn't the big work in sight, and jump to the small work which the small shops are entitled to; as we have found in this credit arrangement, a man's capital is the same size as the job that he should figure and have. You will find at certain times of the year that the larger shops have men who are not doing very much, and they will take small work at a price where they do not expect to make any money, but simply to hold their men and organization together, so you can see that the credit arrangement of this kind will keep the bigger shops figuring the work which they want to figure and should figure and the small shops will not be molested and have the competition from the larger shops on work that they are entitled to. It is a common thing that the entire plumbing and heating trade is held by the consumer as robbers simply because so many unreliable shops have finished their jobs and not paid their supply bills, and the jobber is forced to file a lien and make the consumer pay for the job twice. This, more than anything else, has put the trade in the eye of the public as a robber.

Now it is easily seen that where there are reliable shops, sometimes it is hard for them to get money to pay their bills, for the reason that the plumber especially is the first man on the job to put in the service and he is the last man on the job setting fixtures. Now, you know 90 per cent of all buildings built are always short of the appropriation, and the result is that when the plumber, who is the last man off the job, has his bill made out and presents it he is always advised: "While I figured on this job costing me so much, I find it costs me more, and you will have to wait about 60 days until I can make another loan and then I will pay you your bill." The result is that the jobber is compelled to carry the plumber, for the reason that the plumber cannot possibly get the money.

I used to have people continually calling me every day before the 10 per cent arrangement went into effect, asking me if John Jones or Bill Smith, and so on, were reliable men and would pay their bills, simply because the consumer had to pay so many bills in our trade twice, and the consumer had a right to kick, but the trade got the benefit of this black eye on account of this "riff-raff" which was continually floating in and which flourished on account of no credit restrictions. But now it is a different thing. We never have consumers calling us up to ask whether a certain plumber is reliable, for the whole city knows that the plumber is compelled, as they put it, to pay his bills, and they know, or give him the benefit of the doubt, that if he gets his money from them he will pay the supply bill, for if he does not pay his supply bills he cannot buy

any more goods on credit. So the consumer is now paying his plumbing and heating bills, and the public certainly appreciates the square deal that it is now getting from the trade, and heartily endorses it as the best thing that has been done in this line.

Now, you will always find that this credit arrangement will meet with the hearty endorsement of the architect, for the architect is embarrassed many times by liens filed on his client's property, and in these cases the trade did not get the blame so much as it was continually hard on the architect. As one architect has told me, he had more trouble with his plumbers than all the rest of the contractors on the job; but now this has made it much easier for the architect, who lets his jobs to the lowest bidder, for he knows that if a man figures on a certain size job and gets it he is capable of handling the job, because he cannot go ahead with it unless he has the financial backing.

We had many amusing illustrations: For example, a friend of mine, a month before this was put into effect with the trade, said to me: "Well, Jim, this new credit arrangement is going to keep me out of building a new home for myself for a year." I asked him why. He said: "I intended to have you carry me from June until the first of the year, and was going to take the money that I made on my contracts and build a new house, as I have my lot paid for, but now that I have to pay my bills I will have to save up my money until next year and build my house when I get the money, because I cannot stand the lumber people off." So you see the greatest help to the trade is that you are always making money when you are paying your bills.

We had nice shops here which were doing a lot of work but not making money because they were letting their bills drag so long that they lost track of the details and overlooked them, and they were simply scratched off the first of the year. They find now that these small matters that they were charging off were their profits, but now they look at everything very carefully each month, and they have a profit, and when the end of the year comes they have made some money.

When this credit arrangement went into effect we had 155 plumbers in our city. After it had been into effect six months we had lost 35 shops. It might look as if we were driving people out of business by this arrangement, but we were not; we were simply permitting people that were capable of doing the business to remain in business. We were putting the plumbers on their own footing, and today they appreciate it, and each year they are making a little money, which heretofore they were not on account of the "riff-raff," which was about 20 per cent of the trade that was continually keeping competition and prices at such a point that nobody could make any money, and I am convinced when I say that I don't think there is a shop in Indianapolis that would want to go back to the old way of paying their bills. It does not restrict new shops in any way, for the only thing that we require of them after they secure their license and bond is that if they want credit they can get same and they get the credit which is equal to what their credit-rating shows. This is the fair and square thing to do in regard to new shops, because the jobber is doing a great injustice to the old-established trade when he permits a new shop to start and become a competitor of his established customers by not having enough money to stand by itself. I have heard the trade in Indianapolis say that if the plumbing and heating trade only knew the benefits of this credit arrangement, they would demand it from the jobbers in all cities, for it is the greatest help to a reputable established business concern that can possibly be had in our line, and it is the finest possible protection for the trade.

As far as the law is concerned regarding this 10 per cent arrangement, we find that it is entirely legal, and that a 10 per cent discount is as legal as 2 per cent, for it simply is a contract under which you sell your goods, and you are entitled to sell them at any discount that you please.

Minneapolis, Minn.

Your valued communication of the 16th inst. was duly received, but on account of pressing business the writer was obliged to postpone replying to same until today. In answer to same allow me to state the following:

The 10 per cent proposition was originally introduced in the city of Milwaukee in the year 1896 by the leading plumbers of that city. The proposition appealed to the jobbers and was put in vogue immediately, and and has worked very successfully and satisfactorily for both sides up to the present date.

When first put into effect it was applied to the better class of plumbers only, but in a few months all the smaller plumbers were placed on the same basis. The writer has made quite a study of the particular system for a number of years and succeeded in the spring of 1908 in having this system adopted in the city of Minneapolis, and a year later in St. Paul.

Here in the Twin Cities we add to the regular selling prices 9 per cent, either in quoting or billing to the trade, and allow them 10 per cent discount, providing all purchases of the preceding month are paid on the 15th of the month following.

This arrangement gives the heretofore discounting customers the 2 per cent they have been in the habit of taking advantage of. Remittances mailed on the 15th and received on the morning of the 16th will be passed to the customers' credit with the 10 per cent discount. Failing to comply with prompt remittance on the date mentioned, customers lose their 10 per cent discount.

All settlements on the 15th of each month must be made in cash or by check only. Security in the form of notes or other paper will, under no condition, be accepted in payment of material.

Where a customer has lost his 10 per cent on his previous month's purchases and has been granted an extension of 30 days additional, by consent of the association members, and fails to remit promptly on the 15th of the succeeding month, he is invariably placed on a spot cash basis. Customers who get into the habit of requiring additional time, and thereby lose their 10 per cent of the first month's purchases, are finally placed on a straight cash basis.

Our regular jobbers' meeting is generally called two or three days after the 15th of each month at the secretary's office, when all these matters are carefully considered and adjusted to the satisfaction of all.

The writer would like to add here, that prior to the time of the adoption of the 10 per cent system the Twin Cities had a Credit Association which is still continued in connection with the 10 per cent proposition. We employ a very capable man as secretary on a straight salary basis, who has his assistants to take care of the association work. All members report to the secretary's office every day their city sales as well as credits or remittances. The secretary in turn compiles the total credits and purchases of the combined houses, and reports the total back to us the following day. These daily reports place us in a position to know the indebtedness of all our city customers each day.

We also have an agreed limit of credit for each customer. Although this limit is not strictly adhered to, yet it places us in a position to know where to chop off when he has reached that limit. The customer is promptly notified by

the secretary to reduce the account somewhere before he can get any more goods on credit. Through the application of this system our losses have been held down to a minimum, and, averagely speaking, we can practically bank upon anywhere from 95 per cent to 100 per cent of our city collections.

We cannot too strongly emphasize the fact that the jobber is thus placed in a position to meet the keenest kind of outside competition, due to the fact that he is relying upon, and assured of his returns within the 30-day limit.

This arrangement has also the tendency of weeding out the unbusinesslike and would-be plumber, who proposes to run his business on the jobbers' capital, and compels him to conduct his business within the range of his own capital and ability to handle the same.

Our customers find very little trouble in closing their contracts on a basis whereby they are placed in a position to comply with this arrangement, as this is the most essential point of the entire proposition—to see that their collections are made in time to enable them to take advantage of the 10 per cent discount by the 15th of the following month. Local architects are getting accustomed to the 10 per cent arrangement, and provide for a special clause in the plumbing contract which they draw up for their clients, so that the monthly payments to the plumber are to be taken care of on or before the 15th for all material delivered on the job the preceding month. Thus the plumber will see that it is to his advantage to co-operate with a system which enables him at all times to buy his material at home and at the lowest market prices. Furthermore, he has the satisfaction of knowing that the competitor without capital is not keeping his profits down and demoralizing conditions on the strength of the jobbers' capital.

At the time we put this system in vogue the local jobbers made arrangements for the convenience of their customers who were indebted to them, to enable them to settle any balance they might owe on the old account, by making monthly payments thereon until settled. It was agreed that the minimum of 10 per cent of the old accounts be the smallest amount which could be settled on by monthly payments: In a number of cases settlements of this kind were closed up by notes.

Our 10 per cent arrangement covers all materials except merchants' steel pipe. This was left out on account of unfavorable local conditions. We issue two monthly statements, one covering the 10 per cent account and the other the 2 per cent or pipe account.

We are of the opinion that the above system has operated to the joint advantage of plumber, fitter and jobber, and has lessened the number of small irresponsible shops which we have had, and always will have the tendency to keep them from starting up.

You can readily see that this plan has not the usual tendency to invite outside manufacturers and jobbers to solicit the local trade, for the reason that we are placed in a position where we can meet the keenest kind of competition, and the fact that the trade wants and is in favor of the 10 per cent system is sufficient to warrant their loyalty to patronize the home jobbers as far as possible.

A regrettable feature in connection with this proposition is the fact that the majority of the trade, master plumbers and steamfitters, do not fully understand and comprehend the importance of the 10 per cent system. If the jobbers made it their business to take special interest in the matter and thoroughly acquaint their customers with this proposition, there is no doubt but what every plumber and fitter would welcome a proposition of this kind. The advantages of this proposition would readily appeal to his good judgment, with the result that the underlying principles of the curse of the business of the plumbing and heating line, from the standpoint of the master plumber and fitter, could be removed, and business could be done on a sound and businesslike basis. This the master plumbers of our city, St. Paul, Milwaukee and Indianapolis, have recognized, and are more than pleased with the operation of the system in vogue.

I am informed that the city of Detroit adopted the 10 per cent system last summer, and within the next few months the cities of Seattle, Tacoma, Los Angeles and San Francisco expect to adopt this system. I understand that there are other cities in the middle states that are seriously considering this matter, and that Chicago has given this subject considerable interest and is about to decide on its adoption.

I don't know of anything in particular that I can add at this time, except to refer you to the remarks which were made at the C. S. A. meeting held in Chicago last October, copies of which you may obtain from the secretary of the C. S. A.

TWO ORIGINAL CARDS.

Way up in Butte, Mont., there lives a plumber who styles himself Campbell, the Plumber. He illustrates his card as shown in Fig. 1, pronunciation of his name corresponding to that of the "ship of the desert." He also wishes to be known as "the square plumber," and this symbol you will clearly see. Our representative called

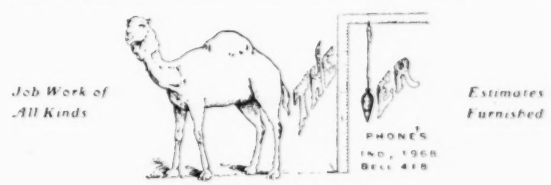


Fig. 1.

on him the other day, and finds that Montana plumbing is at top-notch. Mr. Campbell does plumbing, heating and ventilating and prides himself on doing the best work, with the best materials, at the best obtainable price.

Fig. 2 shows an exceedingly neat card recently put out by the Hughes Heating & Plumbing Co., Inc., 1514 E. Franklin St., Minneapolis, Minn. It is in a light brown with a silver center and black embossed lettering. Con-

Fig. 2.

trary to many attempts at colored cards, it is not obtrusive, has a dignified appearance, and should be instrumental in winning respect for the house. W. W. Hughes, president of the company, is always on the lookout for something new as a business-spur.

QUESTIONS AND ANSWERS

RADIATING SURFACE ON PIPES.

Editor "Domestic Engineering":—Please tell me how many feet of heating surface there is in a certain number of feet of 1-in. pipe. If you can give some of the different sizes, also, would appreciate the same.

C. H. J.

We have answered this question before and, if not mistaken, we gave the radiation in percentage. This time we will give it in inches equaling one foot of heating radiation; below is the table:

Heating Surface.	Size of Pipe.	Length of Pipe.
1 sq. ft.	1 in.	36 in.
1 sq. ft.	1¼ in.	28 in.
1 sq. ft.	1½ in.	24 in.
1 sq. ft.	2 in.	20 in.

These are the most common sizes used that it would be necessary to figure.

COPPER RANGE-BOILERS.

Editor "Domestic Engineering"—Are there any advantages in using a copper range-boiler? 66.

It is claimed that a reinforced copper range-boiler will stand high pressures; that the water has no action whatever on it, and so no rust or corrosion will result.

THE SITZ BATH.

Editor "Domestic Enginering":—Of what material are Sitz baths made and what is their size?

John Graham.

They are made of solid porcelain and also cast-iron enameled and are about 30 in. long and about 25 in. from back to front. In depth they are some 10 or 11 in. From the floor to the top of the rim (behind) is some 20 in.

A HOME-MADE DRILL FOR BRICKWORK.

Editor "Domestic Engineering":—Will you be kind enough to tell me the best manner of getting small holes through brick walls and the proper tool to use for doing this job? A. J.

You can take some pipe that is used for steam and make a drill for yourself. If you desire the pipes to go through the hole very easily, you may make the drill of pipe one size larger than the size of the pipe you are intending to use for the water or steam. Now it will be necessary to file some teeth at one end of the pipe that you make into the drill. In doing this you will get a better slant on the teeth if you use a small triangular file about the same size as you would use if you were going to file a saw. Do not attempt to make the teeth of the drill too long, rather have them "stubbed" and you will get a drill that will give you good service. We always completed the drill by driving a punch into the end of the pipe after we had the teeth filed, so as to give the teeth a somewhat outward slant, as we found that then the drill was less liable to bind or get stuck in the wall when we were using it. Such a drill will make small difficulty of going through even the toughest of brick walls.

CIRCULATION AND SEPTIC-TANK QUESTIONS.

Editor "Domestic Engineering":—Although a very recent subscriber to your paper, I make bold to ask a couple of questions. On the enclosed sketch, Fig. 1, I would

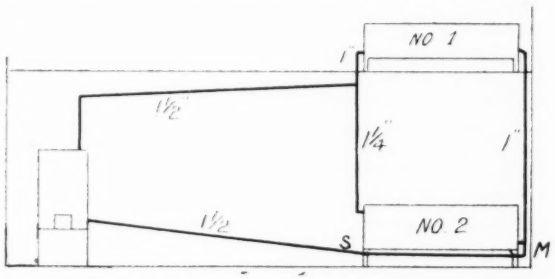


Fig. 1.

like to know if you think I would get a good circulation in radiator No. 2, piped as shown, or would it circulate better to have a separate pipe for No. 2?

In the case of Fig. 2, which roughly shows the three septic-tanks shown in a recent issue of "Domestic Engineering," would it not be better to enter the house-tile

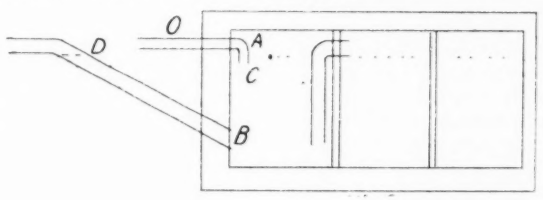


Fig. 2.

as shown at A rather than as shown in the original at B? It seems to me there might be danger of a tendency to clog at D in the last case. I suppose this entrance is intended to act as a trap for house-pipe.

Thanking you in advance for any advice in the matter, I remain,

Milton, N. Y. H. H. H.

If the radiators are located as shown in the sketch, the method of piping would favor the top radiator, and I doubt if the lower one would heat very much. I should favor a separate pipe to the lower radiator, and would also connect the return at S and not at M, as shown in the drawing. Undoubtedly the job would work better for having an increased pressure developed by some of the circulation accelerators on the market.

If the tank were used infrequently and the amount of water stinted, it would seem that the pipe D-B would have a chance to stop up. It would seem that shown by O-A would be more practical, with the insertion of a vented trap at point O. If thought necessary, the drop-pipe could be lengthened from A to B. About half that distance, to point C, would probably work well.

The Boss Talks to His New Foreman About Heating

Written by T. Twice

I.

John, I believe we had better have that little "heart-to-heart" talk we have been postponing until the rush-season was over. I want you to bear in mind that in picking you out for my foreman, I have been governed to a considerable extent by the reports from customers for whom you have done work, as to your general conduct while you were on their jobs. I want to say to you that you need not be ashamed of the reports. At the same time, don't let this information interfere with the fit of your hat. It will be up to you to do some burning of the midnight-oil, but you want to be rational in this respect, as too much study at night is very apt to make a tired workman the next day.

You might go over and get what measures and information you will require for making a working plan for that steam-job we landed yesterday, as it will be ready to go after just as soon as the boiler and radiators get here. I ordered this stuff last night. "Excel" sectional boiler, and 3-column, 38-in. steam-radiation. They don't want us to start the job till the boiler and radiation are on the premises.

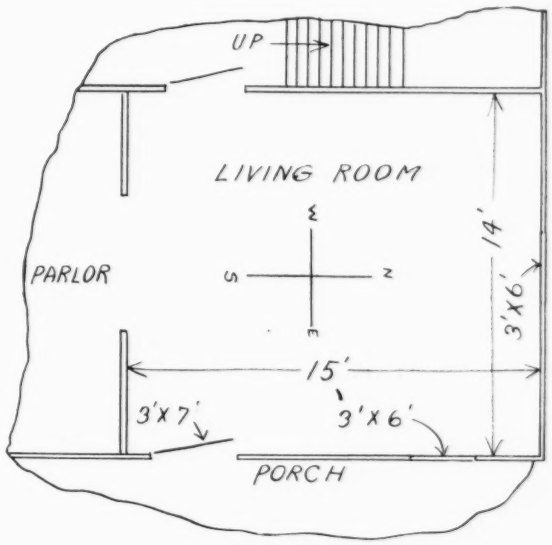
Be sure and get the following information for yourself (I already have it): 1, size of the different rooms; 2, heights of the ceilings; 3, size of the doors and windows; 4, height of windows from the floor; 5, probable location of the boiler and radiators; 6, size of the flue, and see if it has a good draft; 7, kind of fuel they expect to burn; 8, direction in which the house faces; 9, any rooms not to be heated; 10, any other information you may think you will need.

You will need this information on all heating jobs you will go after, so store this away in your head for future reference. Make a rough draft of the house, and go to the basement and roughly figure out where you can best run your mains. This will help you when you come to lay the job out to scale. You must always have it clearly understood, and embody it in all your specifications, as to whether or not you have included the decorating of the radiators, and the covering of the boiler and piping in the basement in your bid. You will save yourself considerable grief if you will bear this in mind, and a clear understanding makes good customers.

After you have made the floor-plans of the building, and you will find this much easier than you now think, the next thing will be to figure the radiation required, and I believe you had better adopt Prof. Carpenter's method, which is to figure by the B. t. u. basis. You will find you are getting pretty near the correct thing when you figure your heating problems on the heat-unit basis.

It used to be customary to plant a radiator in a room, and if it heated or warmed the room to the required temperature, hand yourself a bouquet, or if it did not warm the room to the required temperature add some to it. That don't go any more, John, take it from me; use the B. t. u. and play safe. There are plenty of the B. t. u., so you need not be afraid of exhausting the supply. By the way, that reminds me of the old saying about the booze. There is no man living that can get away with it as fast as they make it. That is a pretty good thing to remember, and also remember that hoisting your foot up to the brass rail out in front, is making a pretty poor start toward buying an automobile, that is if you expect to be the owner.

But to get back to the method of figuring radiation, I will explain this to you clearly, so you will be able to figure radiation for any difference in temperature between the air in the room and the outside air. We will take



Floor Plan of House.

for example, the corner room in this house, located in the N. E. corner, having 2 windows, 3x6 ft. each; 1 door, 3x7 ft.; 10-ft. ceiling, good construction.

Glass.	Wall.	Cubic Contents.
36 sq. ft. windows	24x10=240 sq. ft. wall	15x14x10=2100 cu. ft.
21 " " door	57	.04 factor for 2
57 = glass	4 | 183 = actual wall	air changes
	46 = glass equivalent	per hour
		84.

57
46
84
187 = B. t. u. loss for every degree difference in temperature between the air in the room and the outside air.

We will assume the room to be heated to 70°, with an outside temperature of —10°. 70°+10°=80°, difference between the air in the room and outside air.

187 B. t. u. loss per degree difference in temperature between air in room and outside air.

80 diff. in temp. between air in room and outside air.

14960 = B. t. u. loss from room per hour.

With steam at 2-lb. gage-pressure, it is commonly assumed that 1 sq. ft. of direct 38-in. radiation will give off 275 B. t. u.s per hour; therefore, if we divide 14960 by 275, we get approximately 54.5 or 55, which equals the square feet of radiation required to heat the room to 70° with an outside temperature of —10° or 10° below zero.

On account of the room having a north exposure, we will add 10 per cent to the amount just found, which will make 55+6= practically 61 sq. ft. Call it 60 sq. ft., as the radiation actually required to maintain the temperature of the room to the point required.

You will see from the above explanation you can easily

find the amount of radiation required for any room, with any given temperature in the room and any given outside temperature.

I have figured out a number of factors to use for multiplying the B. t. u. loss per hour, per degree difference in temperature between the temperature in the room and the outside temperature and you can use these factors for multiplying the B. t. u. loss per hour, per degree difference in temperature between the air in the room and the outside air. These you can use instead of multiplying by the total difference and dividing by 275, the efficiency of the radiator.

Factors.

To obtain 70 deg. in room with the following temperatures of outside air, multiply by factors given.

Temperatures	Factors
20 deg. above zero	.20
10 " " "	.23
0 " " "	.25
10 " below "	.28
20 " " "	.30
30 " " "	.35
40 " " "	.40

For example, take the room we have previously figured, and which shows 187 B. t. u. as the loss per hour for each degree difference between air in the room and the outside air, and assume that we wish to know the radiation required to heat the room to 70 deg. with 20 deg. below zero, outside temperature.

187 × .30 equals 56.1 sq. ft., and adding 10 per cent for north exposure makes the radiation come to 61.7 sq. ft., which we will call 60 sq. ft.

The first method is longer, and you can get varying amounts of radiation by dividing by different efficiencies of the radiating surface, but you will find that you will have ample radiation by multiplying by the factors, as I have found them to work out all right in actual practice, and plenty strong.

A great deal will depend on yourself in figuring radiation, as to how you judge the construction of the building, as regards to it being what is called, good, fair, or poorly constructed, and after you have had your eye-teeth cut a few times, you will gain some knowledge that you would not part with for a good deal. Well, that is about enough for that, so we will see what we had better add or deduct for exposures. By exposures, of course you will understand that we are talking about the way the house or building stands with regard to the points of the compass.

Add 10 per cent to rooms having a north exposure, 15 per cent to rooms having north-east exposure, 20 per cent to rooms having north-west exposure. Add 30 per cent to bath-room radiators. Add 10 per cent to radiators in rooms having fire-places. Deduct 10 per cent from south bed-rooms.

You want to bear in mind that rooms that are heated in the day-time only will require about 30 per cent more radiation than those in which a steady heat is maintained. This applies to schools, churches, theaters, and the like class of buildings particularly.

This may make your radiation figures look strong, but you will find they are needed if you wish the mercury in your thermometer in the building to climb up and get acquainted with the 70-deg. mark.

You will want to consider the number of times the air in the room will be changed per hour, and in finding the B. t. u. loss from this source, you will multiply the cubical contents by the proper factor from the following table. In the first room we figured, you will notice we multiplied the cubic contents by .04, and you will see that .04 is the factor for 2 changes per hour, and you can safely assume that all residence-rooms can be figured as having the air in the rooms changed completely, twice per hour. This will also, in nearly every case, apply to rooms having cubical contents of less than 20,000 cu. ft. Above 20,000-cu-ft. capacity, it will be safe to figure on one air-change, as large rooms are not affected by the opening of doors or windows as are the smaller ones.

Factors.

For 1 change of air in the room per hour multiply cu. contents by factor, .02.

For 2 changes of air in the room per hour multiply cu. contents by factor, .04.

For 3 changes of air in the room per hour multiply cu. contents by factor, .06.

For 4 changes of air in the room per hour multiply cu. contents by factor, .08.

For 5 changes of air in the room per hour multiply cu. contents by factor, .10.

This ought to put you in good shape to figure the radiation required under almost any given conditions.

In figuring direct-indirect radiation, add 25 per cent to the results you find above, and for indirect, you will find that adding 70 per cent to the amount required for direct radiation will come closer to being right than adding 50 per cent as is the usual custom.

Now, here is another point you want to remember, and don't wait to learn by actual experience, as experience usually costs you money, and that is, when you put a radiator under a window-seat, just figure on that radiator being as effective as it is rated, less 25 per cent. This is due to the fact that the air cannot circulate around it as freely as though the seat were not over it, and for that reason it loses in efficiency. To make it clearer to you, if you put under a seat a radiator having 100 sq. ft. of surface, it will just about be equal to 75 sq. ft. out in the room where the air can freely circulate around it.

I guess that is about all for the radiation, and you had better lay out your heating plan. This is to be a one-pipe steam job, gravity, remember.

I guess you have enough to think over until tomorrow night, so we will lock up and go home. See if the back-door is locked, and turn off the lights in the shop.

OBITUARY.

T. A. Shoemaker.

While returning from Vancouver, where he had been doing some work, T. A. Shoemaker, a master plumber of Portland, Ore., lost control of his automobile and was instantly killed when the machine plunged from a viaduct and was overturned. Mr. Shoemaker, who was only 35 years old, is survived by his widow and a three-year-old son, and by his parents, two brothers and two sisters.

Vancouver, B. C.—Barr & Anderson, 114 Hastings St. W., the well-known plumbing and heating contractors, report good business conditions. The firm was established in 1898 by Matthew J. Barr and Jesse G. Anderson, and has grown until it now has 140 hands on its pay-roll. Last year the business amounted to over $400,000, requiring 175 men during the rush season. Among the larger jobs handled are the Metropole Hotel, the Court-House, the Pacific Turkish Baths, the Metropolitan building, the Clarke building, the Dominion saw-mills, St. Paul's Church, school and rectory, the British Columbia Telephone Co., the Bank of Montreal, power-house for the Western Canada Power Co., the Northern Crown Bank, the Russell Hotel of New Westminster, and a number of smaller residence jobs, such as 28 houses for the Bankers' Trust Corporation, and 35 for the Beard Home Bldg. Co.

The Range Boiler and Connections

Uses, Abuses and Modifications

By Phoenix.

Chapter VIII.

In the previous chapters, the relation between the range-boiler and the water-front have been considered at some length and we believe that it has been explained, quite clearly, just how a good circulation can be obtained. For many years this was thought to be all that was necessary.

In order to complete the job, all that was necessary to do was to run the hot-water pipe to the different fixtures, stopping when you arrived at each particular fixture, the cold-water pipe having been run, or perhaps being run side by side as the hot-water pipe was put in.

This would be as if the pipe 1, 2, 3, in the drawing given were simply continued at point 3 and branches taken off to tub, sink and lavatory as most practical and convenient. In such an installation the range-boiler is at one end of a single pipe and the fixture, or fixtures, at the other, with no other manner of connection other than the aforesaid single pipe. Thus there is always a long line of dead water in the hot-water pipes that is moved only when some hot-water cock is opened, and all of this long line of dead water must run out of the hot-water cock before any of the supply of hot-water that is stored up in the range-boiler can possibly come to that particular faucet. When the faucet is 40 or 50 ft., or perhaps more, in distance from the range-boiler, this requires several minutes and the waste of water is both excessive and needless.

On one small job the waste might not amount to so very much, but in a large hotel or public building the quantity of wasted water amounts to hundreds of barrels in the course of a year, and when you come to compute the amount for a large city you have a serious problem. I am dwelling on this point because that there are thousands of buildings all over the country that are piped after this old-time manner. Worse than that is the fact that many plumbers today still continue to use this out-of-date method, either from ignorance or else to "skimp the job." For any owner to insist that the job be put in single-piped is the height of folly, because if the water is metered the waste, as previously explained, would soon pay for the extra cost of the circulation pipe, not to mention the convenience of the better arrangement.

The first attempt that I ever saw in regard to a circulating-pipe was put in a good many years ago and was a decided failure. Once in a while the same difficulty is reported in the "Questions and Answers" department and so I will go into the matter now.

Many a master plumber can pipe from a hot-water boiler to a radiator and back and make the radiator work first-class. Put the same man at the task of so piping the range-boiler and he falls down, for he fails to get next to the fact that the circulating-pipe in the plumbing job is nothing more or less than a return-pipe, dropped into the job at the right point to make a complete circuit of the water.

The plumber, on this first job mentioned, injected a tee into the hot-water pipe at point 6 and made his circuit of points 2, 3, 4, and 6. (Please forget point 5, in this connection).

From 2 to 3 was about 20 ft. and the short lines to the fixtures were taken off at various points midway. Did hot water come any quicker than if one pipe only had been

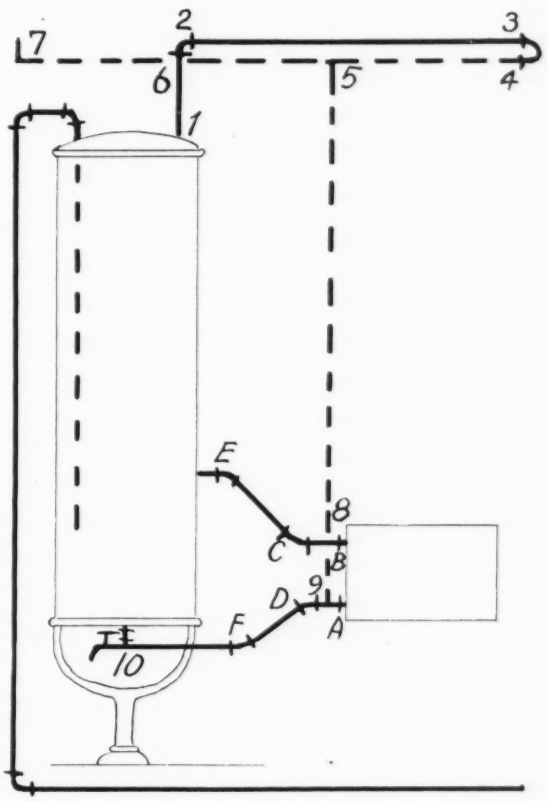


Fig. 2.

used? Certainly not, only as the pipes were heated by the warm air of the kitchen, and as for the circulation, it was not there. So do not put in your circulation-pipes after this manner or you will meet with disappointment and failure.

It strikes me that right here would be a good place to acquire a few definitions. If they are not entirely correct, we may at least have something to go on until all is right.

1. A hot-water pipe on a plumbing job is one used for conducting hot water from tank to fixture.

2. A circulating pipe is a return-pipe to the hot-water tank.

3. A circulating system is one in which the hot water

leaves the tank and returns to it regardless of whether or not water be drawn from any faucet. These definitions are subject to correction or revisions at any time.

In the drawing the hot water starts at point 1, passes 2 and flows to 3, turns to 4, comes back to 5 and sinks to point 9, where it enters the cold-water pipe between the range-boiler and the water-front; then taking up the circuit into the water-front and out into the range-boiler and so on all over again.

You have here a circulation of water in the pipes leading almost up to each faucet on the job; for these can be taken off at any point between 2 and 3, or 4 and 5.

Such single-supply pipes would be quite short and the quantity of water in them would be very little, so with an ordinary fire, one would draw hot water very quickly at any faucet.

THE CHARGE OF THE "MITE" BRIGADE.*

By H. de Joannis, Editor "Domestic Engineering."

Half a leak, half a leak,
Half a leak onward,
All in the valley of Debt
Strode the six hundred.
"Forward the 'Mite' Brigade.
"Don't charge for pipes you've laid."
Into the Valley of Debt
Strode the six hundred.

Forward the "Mite" Brigade.
Was there a man dismayed?
Not on your life, for few
Dreamed they had blundered.
Theirs but to cut a price,
Take jobs at sacrifice
Living wage must suffice—
Into the Valley of Debt
Strode the six hundred.

Contracts to right of them,
Contracts to left of them,
Contracts in front of them—
Profits were sundered.
Contracts were seized pell-mell
Prices too low to tell—
Into the jaws of Debt,
Trade-standing shot to Hell,
Strode the six hundred.

Contracts all profit-bare,
Here them then storm and swear
"Charge owners everywhere
Added price for repair"—
Sane people wondered.
Still through commercial smoke,
Right through the line they broke
For contracts rushing
Treating them as a joke,
Madly they blundered.
Some then crawled back, but not—
Not the six hundred.

Contracts to right of them,
Contracts to left of them,
Contracts behind them—
Profits still sundered.
Damn all by book and bell!
What odds the men who fell?
Contract-getting weaves a spell.
Back from the jaws of Debt,
Back from the Cut-Price Hell,
Came what was left of them—
Left of six hundred.

When will this witchery fade?
O the wild charge they made!
—Business men wondered.
Foolish the charge they made,
Insane the "Mite" Brigade—
Demented six hundred.

Moral—He who cuts prices is a "mite," nowadays we say mutt."

*Reprinted by request from "Domestic Engineering," Dec. 31, 1910.

NEW OFFICERS OF THE GALVESTON, TEX., MASTER PLUMBERS' ASSOCIATION.

At the annual meeting of the Galveston Master Plumbers' Association held on August 15th, the following officers were elected for the ensuing year: President, C. H. Diercks; vice-president, P. J. Medley; treasurer, Geo. E. Robinson; recording and financial secretary, R. C. Malitz. This is Mr. Malitz' fourth term as secretary.

JOHNSTOWN, (N. Y.) LOCAL ASSOCIATION ORGANIZED.

Pres. John H. Moran of the New York State Association of Master Plumbers reports the organization of a local association of six master plumbers at Johnstown, N. Y. The officers are: President, W. Lynes; vice-president, John C. Rice; secretary, H. T. Martin; treasurer, Chester Sheppard.

The charter members are: Hill, Van Nest & Grandy; Hotaling & Capron Co., W. Lynes & Son, Frank Randall Co., John C. Rice, and Sheppard & Goodwill.

DENVER MASTER PLUMBERS' ASSOCIATION ELECTS OFFICERS.

The recently elected officers of the Denver Master Plumbers' Association, whose headquarters are in the Nassau Block, are as follows: President, John R. Parry; vice-president, R. T. Hill; secretary, J. F. Van Daniker; treasurer, P. E. Lamont; sergeant-at-arms, Lee St. Clair; auditing committee, J. H. Daly, T. J. Reilly, Ed. J. Quinlin; board of trustees, J. P. Pellenz, E. A. Grant, W. M. Reilly. The executive committee consists of the officers and Jas. H. Eagan, J. J. Wafer, J. C. Herbert, L. H. Balfe, Fred Walker, H. D. Everett, J. H. Winters, S. W. Williams, P. E. Snow and A. Young.

CHICAGO SOUTH-SIDE MASTER PLUMBERS' OUTING.

The Chicago South-Side Master Plumbers' Business and Social Club will hold an outing on Sunday, August 27th, at Santa Fe Park, Ill. Train leaves the Polk Street depot, Chicago, at 12 o'clock, noon. Heretofore it has been announced that there would be two trains, and we desire to emphasize the fact that there will be only one. The automobile roads are very good, and the airship rute is said to be fine. There will be a baseball game between the supply salesmen and the South Side Master Plumbers' team. There will also be a tug-of-war between the U. A. Steam-fitters and the I. A. Steam-fitters, and there will be various other games and races, with prizes for each contest. The Publicity Committee consists of Wm. M. Hanrahan, chairman; Jim Copeland, Chas. Boyd, John Delehant and Joseph Killeen.

THE JOURNEYMAN AND HIS HELPER

JOIN HANDS FOR BETTER WORK

A JOURNEYMAN TILTS AT SQUIRE HOTFOOT.

Editor "Domestic Engineering":—Have read with much interest all that has come forth in your valued journal about the jobber. I am especially interested in the comments of H. C. in the issue of July 15. Also the offerings of the "The Squire" and "Robin Hood" in a later number, and as you so graciously invite the views of others of the craft I am sending on these few "sparks from the iron of thought" as you so nicely put it. H. C. opens up by stating that he is a journeyman "at present." Now many of your readers know that the writer of these few humble lines is a journeyman also only he is not only a journeyman "at present" but has been a journeyman for some time past and intends to remain a journeyman for some time to come. Therefore I will so far as possible confine my remarks to those phases of the topic and those statements of H. C., "The Squire" and Robin Hood, which have to do mostly with us journeymen.

To begin with I agree with Robin Hood, that H. C. does well to admit that he does not possess "the insight you big ginks have into the national and money affairs."

Anyhow, I am afraid that he belongs to the knocker class with a capital K. He further states that he is "thinking of opening up a shop." Now that in itself isn't such a bad thought. Many of you journeymen no doubt have and may now be entertaining a thought of that kind. I very much hope you are, for we are sadly in need of more shops opened up and run by good journeymen. H. C. in my belief would do best to confine his aspirations to their present status as long as he believes as he says he does.

If he is possessed of $5,000 now, I ask with "The Squire," what in thunder does he want with the plumbing business anyhow? And if he hasn't about such a bundle of "cole" how far would he get paying cash for his goods and labor and waiting for Tom, Dick and Harry to negotiate loans on their buildings to pay him?

But suppose he did open up a shop; with things under the conditions he points out he would have to locate in the back yard of some manufacturer who turns out the complete line and such a concern does not exist.

He rails away against the jobber and finally puts him down as no good at all. At the same time he lauds the mail-order house, and concludes it's a grand thing. Let's see, what is a jobber anyway? Isn't a jobber a firm or individual who buys goods or materials from manufacturers or importers in lots, gathers them together in his warehouse and sells them in smaller lots on 30 or 60 days time to the retailer? I believe this is about what he is. Now what is a mail-order house? A mail-order house is a firm or individual who buys goods or materials from manufacturers or importers in lots, gathers them together in his warehouse and sells them in smaller lots, or at retail to **any one who has got the money to pay for them!** Wholesaler, retailer or consumer is all the same to the mail-order house.

So where, O, where! are you at, H. C.? Just suppose you are a master plumber "at present" and the jobber has quit. Please tell us just **how** you would deal with a mail-order house and just **how** you would deal with the manufacturer direct, and just **how** you would do a business of say seventy or eighty thousand a year without having a few things charged. Just tell us, H. C., and don't ramble around the blackberry-patch. And now, good people, with your kind permission and indulgence I will endeavor to render a correct impersonation of a journeyman steamfitter taking exception to a few remarks by one "Squire Hotfoot" recently rechristened "The Squire."

I see in his last offering he has not neglected to take his regular little punch at us journeymen and he is hereby offered our apologies for being in the way.

But there is evidently something else biting "The Squire" just at present. If not, what could bring him to such a state of mind as to declare that all we journeymen want is the job and the money and a chance to shove it into the boss? Of course we want the job and the money—why not? If his journeymen are shooting it into him why don't he get a few that won't? He advises H. C. to change his jobber if he isn't "toting according to Hoyle"; why don't he do the same with his mechanics? He says "they are not averse to putting in a few licks of an evening for a friend at less money than they will work for you," and he further declares that the material, etc., for these odd jobs comes out of the boss. Did you fellows ever hear anything any more rank than that? Of course, such may be the case with "The Squire's" own journeymen. I can't say as to that, because in my several years in and out of this town I have never had the pleasure of meeting one of his journeymen, so I say, such may be the case with him. But the most of us will have to be excused from the charge of stealing material and as for working nights and Sundays for some one other than the boss, I know such things are done. I know good honest journeymen who do an odd job now and then but they never do it for any **less** than regular pay. But then there are all kinds of journeymen—take the one for instance that will work during the day for less than the scale of wages. I wouldn't put it past him to do an hour's work in the evening for about half what he ought to get. And then we might continue and by considering the extremely high cost of living and the wages some masters pay we might possibly find it was a case of necessity, with a few of the journeymen referred to by "The Squire," to get out and do a lick or so after supper.

But that doesn't seem to be all "The Squire" has on his mind. He wants to be rid of the journeymen entirely (it can readily be seen that "The Squire" was never a journeyman himself). He wants to eliminate the uncertain part of the plumbing business, which as represented by the journeyman and the work he does forms the only real gamble there is in it according to him, and by being able to tell exactly what the goods alone cost him sit himself down and pass out these goods at a fixed and known profit which is visible to the naked eye. Thus will he

accumulate a few of the good things of the world for himself and he wants them before he gets old and bald.

But what tickles me, is that "Squire Hotfoot" wants to secure all the profit and leave the purchaser to run the risk on us fellows. We are to be reduced to the position of common tinkers, at the beck and call of every Tom, Dick and Harry "just to screw a few pipes together I bought from Squire Hotfoot." Fine business!

Picture "The Squire" in the act of selling a tub, closet and sink for cash, at a fixed and known profit, to Mr. Brown—"And now, Mr. Brown," quoth "The Squire", "yon dwells the plumber in the little shack across the way; he has had no job for quite a while and the wife has been sick and the kids can't go to school because they have no shoes to wear, so you'll be able to get the things put in dirt cheap, methinks."

But perhaps I misunderstand "The Squire." If I do I am sorry, but for the life of me I can't see how he has all that kick coming anyway. I presume there are masters who have to guess on the time it takes to do work; but how many of you masters who have worked with the tools yourselves have to guess and gamble on the time it ought to take to do a job?

If I were a master who couldn't estimate the time on a job fairly accurately I would hunt up some one who could and wise myself up and not advocate spoiling the business for myself and every one else. The master with "mercantile instinct" alone may supplant the man with mechanical ability some day in the plumbing business but it won't be soon.

"Mercantile instinct." Oh! there's the word at last! Long have I searched for the inducement, incentive or excuse for so many clerks, stenographers and book-keepers being in the plumbing business and running shops and here it has bobbed up and hit me right in the face.

"Mercantile instinct," that's the reason. And now I think of it I have heard of it many times before. The Hebrews, I believe, as a race as well as now and then an individual, are noted for their "mercantile instinct." Why! the old fish peddler who makes our territory, every Tuesday and Friday, is chock full of it. In fact now as I recall it, it is really a very common trait and possessed to a greater or less extent by all tradespeople. But to my mind it should be combined with a little mechanical ability in the plumbing business at any rate and I am not so sure that it wouldn't be a good combination for the other business men to possess. The meat-man might sell you the whole leg of beef and make a fixed and known profit and then sit around for a week waiting for you to eat it up, so he could sell you another; but if he were also a skilled meat-cutter as well as a merchant meat-man he wouldn't think of doing such a thing. I should say not! He would much prefer to cut you off a pound or so at a time and charge you a few cents for the work. You might open up a blacksmith shop and hand out shoes and nails at the door for cash at a fixed and known profit and let your used-to-be-hired man take what chance there might be in nailing them onto the horse. But after a while the grocery man who also possesses "mercantile instinct" might lay in a small stock of assorted horse-shoes and nails along with his harness-oil and axle-grease and where would you be then?

Still, this very thing is the prediction of our friend "The Squire". It's going to correspond with the writing on the wall 10 or 20 years hence. And if it does, where are all your journeymen going to be then?

Let's see, it might not be so bad at that. You could then organize the Independent Order of Town Tinkers and there would be room for one of you in every town. Just blow in and hang up your little sign like this:

Here I am, good people, journeyman Jim, the modern and up-to-date-minute town-tinker, opened up and ready for business. I'll install your bath-tub or kitchen-sink which you can buy from "The Squire" (at a fixed profit). I nail the shoes onto the feet of your horse or the soles onto the shoes of your kids (when buying shoes and soles at grocery store don't forget nails and pegs). I'll paint your wagon if you'll furnish the paint and fix your pump if you'll furnish the fixin's. I also make tin pans, kettles, wash-basins and buckets—you furnish tin, solder, and wire.

N. B. My wife will also make a wig or a switch for your wife—you to furnish the hair—.

Oh, yes; and so it is going to be 10 or 20 years hence! Have we poor journeymen the permission of "The Squire" to wait till then? Or must we get busy and learn the trades of the smith, the copper, the tinner, the tailor and the barber so we will be properly equipped to gather the crumbs from all on which to subsist?

No! No! far be it from such. The plumbing business will never be dominated by "mercantile instinct" alone and the merchant master plumber will be even more of a curiosity 10 or 20 years hence than he is now. Why? I'll tell you in my next.

Minneapolis. B. T. U.

THE HARDEST THING IN JOINT WIPING FOR ME.

Editor "Domestic Engineering:"—I notice that you ask the readers to tell what the most difficult thing in joint-wiping is. To me it was the forming of the joint in the right shape after I had got the lead on and at the right temperature for the final touches. This I attempted to do, as I had observed many plumbers do, with one hand. I failed and failed, as I have afterwards discovered, for the reason that my fingers are somewhat bound and cannot spread to the proper distance. I found that if I took hold of the wiping-cloth with both hands, I could get the right curve to it and then form a most beautiful joint. This point may help some one who has tried and met with the same difficulty that I did, and so I submit it to your journal

Buffalo, N. Y. D. M. R.

WHO MAKES SMALL BELLOWS?

Editor "Domestic Engineering":—Could you please inform me of any firm dealing in bellows? Not the large, blacksmiths' bellows, but the smaller ones, are what I want.

A. C.

Will some reader of this department kindly supply the desired information? Address the editor, and we will publish answer here for the benefit of other readers.

Companions in Misery.

Jones—"I'd like to help you, but I can't; I own an automobile."

Beggar—"I own two—dat's why I'm begging."—Puck.

A Severe Test.

He—"Yes, darling, when I am with you I feel inspired—as if I could do some perfect thing."

She—"Maybe you could order a luncheon that I would like without consulting me!"—Puck.

"Domestic Engineering" Cartoon on "The Endless Round."—No. XL.

GUESS IT MUST BE BECAUSE HE'S JUST A COMMON ORDINARY SQUIRREL
WHY DOES THAT SQUIRREL KEEP ON RUNNING AND NEVER GETTING ANYWHERE
I WOULDN'T BE A SQUIRREL FOR ANYTHING. WHEN I RUN, I GET SOME PLACE THAT FELLOW MAKES ME PANT TO WATCH HIM!
OVERHEAD EXPENSES
POOR ESTIMATING
SUBCONTRACTS
PRICE CUTTING
NO BOTTOM
GUESSES
EXTRA LABOR
PROFIT NUTS
A. MERRE 1911

The Nuts Are on the Outside of the Cage.

If you want to possess a special proof of this or any other of our cartoons, let us have your request at once. We have many applications for our cartoons for framing and want to take good care of all demands made.

PERSONAL MENTION

E. V. Brigham, secretary and treasurer of the Union Sanitary Mfg. Co., Noblesville, Ind., was in Chicago this week, visiting the trade.

F. G. Hart, vice-president of the Hart & Crouse Co., Utica, N. Y., was in Chicago this week and called on some of his many friends in the heating trade.

H. T. Lally, president of the Mark-Lally Co., of San Francisco, was registered at the La Salle Hotel, Chicago, this week.

Edw. F. Niedecken, secretary and treasurer of the Hoffmann & Billings Mfg. Co., Milwaukee, Wis., passed through Chicago last Wednesday on his way home from the East. Mr. Niedecken was injured in the wreck of the Pennsylvania 18-hour flyer last week, but fortunately not very seriously, and he has fully recovered except for the nervous shock.

Geo. H. Tompkins, general counsel for the Central Supply Association, with offices in the Tribune building, Chicago, is at present spending his vacation at Mackinac Island, Mich., accompanied by his family.

Geo. J. Dehn, general manager of the Compound Injector & Specialty Co., 419-421 N. 52d Ave., Chicago, has just returned from a four-weeks' trip through the eastern states and eastern Canada, on which he stopped off at all the large cities and did some good missionary work for the "Dehn" sanitary specialties. He reports business good in the trade in nearly all the large cities visited. He paid particular attention to the trade in New York City, Toronto, Montreal, Buffalo and Detroit.

Edwin Ruud, president of the Ruud Mfg. Co., Pittsburgh, is now in Europe on a business trip. He has visited Hamburg, where this firm has a factory, and also other cities where the company has branch offices and show-rooms. Mr. Ruud will visit Paris to attend to the details of the establishment of a factory in the French capital. The foreign business is so constantly increasing that it is considered necessary to have another factory to take care of it.

C. W. Russell, president of the Russell Sewage Disposal Co., Burlington, Ia., has obtained a patent on a pipe-hanger on an entirely new principle. The new hanger has only two parts and one bolt, and is applicable to many different sizes of pipe. Arrangements are now being made to manufacture this hanger in Chicago and market it through the usual channels.

Henry Bloch, who calls on the plumbing trade throughout the middle West for the Central Brass Mfg. Co., of Cleveland, O., has not visited his friends for the past three months, owing to a run of ill-health. Henry is himself again, and that welcome smile and the congenial Bloch manner, will soon be the talk of the middle West again, for he is back on the job.

It has been reported among the Cleveland and Pittsburgh trade that the real cause of the extremely warm weather in these centers during the past week can be traced directly to the appearance of one O. A. Carlson, of the Turner Brass Works, of Sycamore, Ill. Carlson's vocabulary contains words that have a great tendency to create warmth—"hot blast," "double-jet," "kerosene," etc., which when arranged in his original poetic style do really warm the listener up to the subject. A warm wave is looked for through Pennsylvania, as the heralder of the Turner torch is heading straight across the state for Philadelphia.

Alex. Muirhead, of the plumbing firm of Muirhead & Murhard Co., Portland, Oregon, has just returned from a trip through the Yellowstone Park. He says he had the finest excursion of his life. He desires to advise the master plumbers of the United States, who contemplate attending the next annual convention of the National Association of Master Plumbers, at Salt Lake City next June, not to return to their homes without making this wonderful trip. The tourist season in the Park begins June 15th and closes Sept. 15th. There are five hotels in the Park which are wonders in themselves, situated as they are 30 to 60 miles from any railroad. The plumbing of these hotels is as fine as can be found in the large hotels of Chicago or New York.

BELLINGHAM BRASS MFG. CO. INCORPORATED.

The Bellingham Brass Mfg. Co. has been incorporated at Bellingham, Wash., by C. J. Christopher, F. B. Carrion and E. M. Wilson, the capital stock being placed at $50,000.

EUREKA SANITARY SPECIALTY CO. INCORPORATED.

The Eureka Sanitary Specialty Co. has recently been incorporated in New York with a capital stock of $100,000. Its purpose, as its name implies, is the manufacture of plumbing and sanitary specialties.

MANUFACTURERS SALES CO. IS INCORPORATED.

The Manufacturers Sales Co., Columbus, O., has been incorporated with a capital of $15,000 to act as manufacturers' agent for plumbing specialties. The incorporators are Harry B. Mingis, B. J. Corbett, W. R. Jones, Harold B. Gotch and Val Lower.

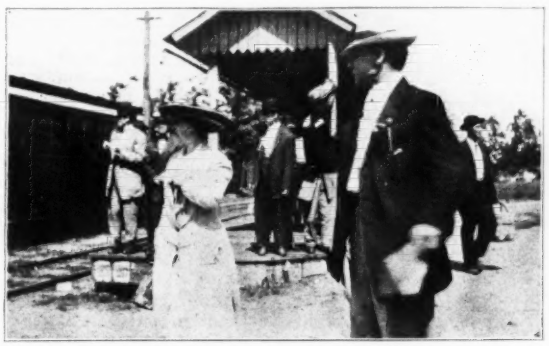
WHAT BOSTON HAS PAID FOR PLUMBING AND HEATING SYSTEMS IN ITS SCHOOL BUILDINGS.

In the annual report of the schoolhouse department of Boston for the year ending February 1, 1911, which has just been published, we find a most interesting table covering 30 school buildings, erected since 1902. This table gives the cost of the buildings, the cubic contents and the number of pupils. An average has been compiled of the 30 sets of figures with the following results: The average cost of construction per cu. ft. of space is 22.8 cents. The cost of the building contracts averages 83.7 per cent. of the total cost of the building, with a range of 77 to 86 per cent. The cost of the heating contracts averages 9.5 per cent. of the total cost of the building, with limits of 7 and 15 per cent. The cost of the plumbing contracts averages 4.6 per cent. and that of the electrical contracts 3.4 per cent. of the total cost of the building. Three of the 30 buildings are high school buildings and the average cost of building of the remaining 27 schools is per pupil $178. The cost per pupil of the three high-school buildings is $548.25, $940.65 and $495.19 respectively, and the cubic contents of these buildings are 1,267,608, 1,392,848 and 1,388,807 cu. ft. respectively; the number of pupils accommodated in these three buildings is 540, 350 and 600 respectively. Charles F. Eyeleth, member of the American Society of Heating and Ventilating Engineers, is engineer in charge of the heating and ventilating division of the schoolhouse department.

THE FIRST ANNUAL OUTING OF THE WOLVERINE BRASS WORKS.

The Wolverine Brass Works, of Grand Rapids, Mich., held its first annual picnic at Fruitport, Mich., on Saturday, August 5th. About 300 employees of the company with their families were in attendance, making a total of about 600 people. An elaborate program had been arranged for the day, including outdoor and indoor base-ball games, many races, a tug of war, quoit-pitching, etc.

The outdoor base-ball game between the Regulars and a shop-picked team was won by the Regulars, and the indoor base-ball game between the All-Star Factory team



The Wolverine Picnic Party Arriving at Fruitport, Mich. Pres. L. E. Cornelius is Seen in the Foreground.

and the Office team was won by the Factory team by a score of 7 to 3. The 25-yd. running race for girls was won by Marie Kersting and the boys' race was won by Oscar Kersting. The 50-yd. race for ladies was won by Miss Lulu Greeves of the office force, and the standing broad jump by Edward Toppel, foreman of the machine factory. The tug of war between the factory and the office forces, 12 on each side, was won by the factory force, although the office force was getting the best of the deal until the combined strength of the factory crowd was put at its end of the rope. The most interesting feature of the afternoon program was probably the game of quoits which was pitched by M. A. Stone, general superintendent of the factory, and L. C. Jones, president of the Wolverine Social Club. The game was for 21 points and it was won by Mr. Stone by a score of 21 to 13. The evening was spent in dancing, in which about 200 couples participated.

The picnic was characterized by the exceptionally attractive manner in which every part of the large program was handled. From start to finish everything was done without any hitch whatever, showing the executive ability of those having the arrangements in hand.

H. C. Cornelius, secretary and treasurer of the Wolverine Brass Works, was chairman of the arrangement committee, and he made such careful arrangement for the train service that not one of the Interurban cars was late, and he had made such ample provision that there was not one solitary strap-hanger in the whole picnic party.

The program committee consisted of: L. C. Jones, chairman; E. J. Randall, J. G. Handorph, Edw. Toppel, Edw. Wilde, C. W. Nason, and A. Kersjes.

It is expected that an event of this kind will become an annual affair with the Wolverine Brass Works as this one proved so delightful and enjoyable in every respect.

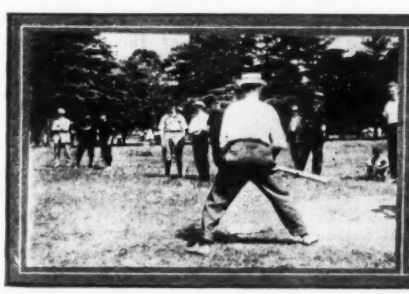
The Wolverine Social Club, referred to above, is an organization of all the employees of the company, which has for its principal object the giving of high-class entertainments during the winter months for the purpose of making the people in the company's service better acquainted with each other.

TRADE LITERATURE RECEIVED THIS WEEK.

The Murdock Manufacturing & Supply Co., 426-430 Plum St., Cincinnati, O., believes in trade-marks. It is not satisfied unless the word "Murdock" is stamped on every hydrant the company makes. The Murdock people specialize in hydrants. They make compression and self-closing, anti-freezing hydrants and street washers. These are adapted to every public need. The form and function of these hydrants are shown clearly in an attractive leaflet sent to all inquirers. The cover-design includes a smiling damsel, maintaining her equilibrium and mirthful demeanor under what seems to us to be extreme balancing difficulty. The back-cover gives a hot tip. You can see the outside and the inside of this leaflet upon request. When you write, mention "Domestic Engineering."

The Kewanee Water Supply Co., Kewanee, Ill., has issued its No. 7 dealer's catalog, which should prove a winner with the trade. Its handsome brown cover bears an embossed representation of Kewanee, a famous Indian chief, who found an abundant water-supply very necessary for the making of a prompt get-away in his war-canoe, either for or after a wholesale destruction of his enemies. The catalog tells of the recent developments in water-supply systems and lays down eight essential points for an ideal system of water-supply. It then presents the Kewanee system as filling satisfactorily the eight essentials. This is done by means of attractive reading matter and instructive illustrations. In fact the various parts of the Kewanee system are taken to pieces before your eyes. They are analyzed and the merits of their construction are pointed out in simple but effective language. Every possible avenue of their use is skillfully mapped out and the catalog may well serve as a guide to opportunity in the development of a profitable water-supply business. It contains 64 pages, is a master-piece of the printers' art and you can get it for the asking. When you write for it, mention "Domestic Engineering."

The Chicago Pump Co., 1053-1055 Fulton St., Chicago, has just published an unusually attractive catalog, entitled "Automatic Electric Pumps," containing a well illustrated and exhaustive treatise on house, bilge and condensation pumps and pneumatic water-supply systems. In the introduction to this catalog the company states that the principle of the mechanism of its pumps is exceedingly simple and that their simplicity is so ingenious that it insures efficiency and power. The designer discovered the mechanical principle on which they operate after years of experiment and experience in pump construction. The result of his efforts is shown in the different lines of pumps, designed for various purposes, the general principle in each pump being the same. The efficiency and durability of these pumps was obtained with an expenditure of much time, labor and skill. The catalog



Mr. Pulsipher just before he made his sensational home-run.

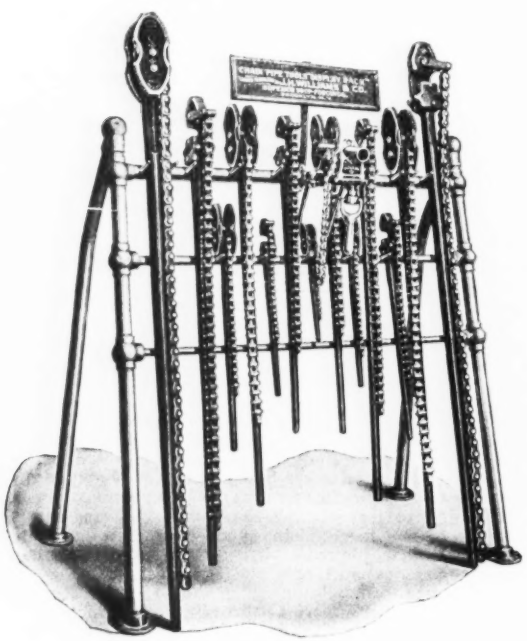
A Few of the Jolly Crowd.

The "Regulars" and the "Picked Team" ready for the Fray.

besides illustrating and describing the company's pumps and water-supply systems also contains a great number of layouts showing their installations in every detail, and it closes with a large list of well-known buildings where these pumps have been installed and can be seen in operation. From the printer's standpoint the catalog is a work of art, being printed on fine paper in two colors and with many high-grade half-tone engravings and zinc etchings. It will be sent free upon application to those who need it in their business, if they will write for it at once and mention "Domestic Engineering."

"A SILENT SALESMAN."

According to popular idea, a salesman is never "silent," but always ready to expatiate on the merits of his particular line of goods. Experience has taught us, however, that the men who carry the best lines find it advisable to let the goods do the talking—after the first visit, when the customer has to be duly introduced, of course. J. H. Williams & Co., 19 Richards St., Brooklyn, N. Y., have the tools that do the talking, and now they are supplying the trade with a "Silent Salesman" of attractive appearance, whom we are glad to introduce to our readers in the accompanying illustration. To the dealer, this "Vulcan-rack" will appeal, because it affords opportunity to make an effective display which will do credit to his establishment, whether placed in the window to catch the eye of the passer-by, or on the floor ready for demonstration of the merits of the contents. To the employer, the new rack appeals in another way. Tools are so readily taken from and replaced in the rack that the usual way of "storing" them on the floor, in a dark corner, or anywhere they are dropped, will be superseded and they will be found "in their proper places" accessible without search or delay. The rack requires very little room for the number of tools it contains, being about four ft. high and the same in width. It is made of black pipe, aluminum painted, and is self-supporting in form. As shown in our illustration, it contains seven "Vulcan Bijaw" chain pipe-wrenches, Nos. 30 to 35, inclusive; six "Agrippa" fittings-wrenches, Nos. 21 to 25, inclusive; and one "Vulcan" vise No. 2. Dealers will find that with the aid of the vise an actual demonstration of the tools can be made. Now if you want to add to your staff a "Silent Salesman" who brings his board with him instead of asking you to provide it daily, just write to J. H. Williams & Co., and tell them that "Domestic Engineering" introduced you.



"A Silent Salesman."

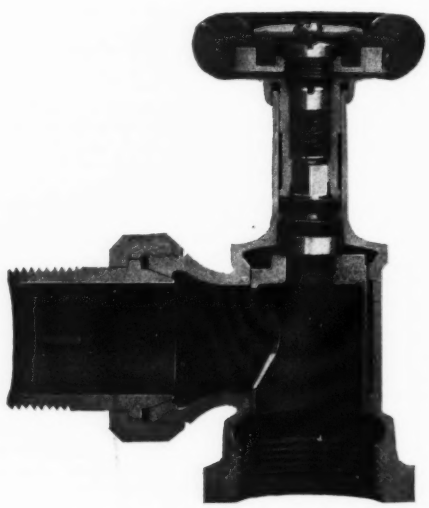
CAST-IRON DRIVE FERRULES.

The Greenwood Mfg. Co., Detroit, Mich., reports a most gratifying demand for the cast-iron drive ferrules which it recently placed on the market, and it attributes this success to the following causes: They require only very little time to install, no wiping of metal being needed. They never get jammed up or broken and by their use it is possible to make a long waste-connection without wipe-joints. The manufacturers also state that any journeyman plumber can make more combination lead and iron joints in one day by using these drive ferrules than he can make in a week in the old way using factory-made combination lead and iron ferrules, besides eliminating the use of wiping metal and gasoline. Those interested are invited to write for full particulars, mentioning "Domestic Engineering."

Cast-Iron Drive Ferrules.

THE "TRITON" PACKLESS WATER VALVE.

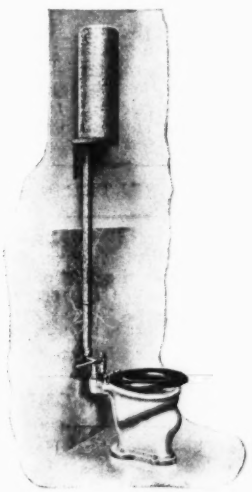
The owner, the architect and the heating contractor form a very exacting trinity, difficult to satisfy. Satisfied they must be, however, if the product is expected to maintain its hold on the market it caters to. The United States Radiator Corporation, Detroit, Mich., has set itself to satisfy the requirements of all three by presenting its "Triton" packless water-valve. To the owner, the "Triton" is offered for the securing of freedom from the annoyance of repacking radiator-valves and immunity from damage to expensive domestic furnishings through leakage. The architect is promised through the "Triton" escape from complaints of clients, and confidence that the valves he has specified will perform their work with absolute satisfaction. Probably the greatest benefit is offered to the heating contractor. The manufacturers claim that the "Triton" will save him frequent and unprofitable trips to his jobs to repack valves only recently installed, and it also enables him to economize on labor. The "Triton" valve is not offered as a cheap valve but as a quality valve. The United States Radiator Corporation is sending out a neat little folder which details the specific merits of the "Triton" construction and efficiency. You can get it by asking for it and by mentioning "Domestic Engineering" when you ask.



The "Triton" Packless Water-Valve.

THE KELLY CLOSET.

In dealing with the sanitary and effective removal of sewage from dwellings, not only has the type of closet to be considered but also the quantity of water used for accomplishing the disposal of the sewage. The improvement of water-quantity is one that has been forced upon us through the congestion of city population. We have been altogether too extravagant in water usage, and the consumer in all large cities is being taught the advantage of water conservation through the installation of meters. Thos. Kelly & Bros., 422 S. 45th Court, Chicago, have spent many years evolving a closet which should be durable under all conditions of rough usage, which will furnish sufficient water for sewage removal without waste, and which will perform its operations without leakage. In several cases of installation, considerable saving has been effected. A leak in a water-closet of an ordinary type in one case cost the consumer $25 in 30 days. Replacement by a Kelly closet resulted in a water-bill of $1.50, or a saving of $23.50 in a month.



The "Kelly" Closet.

One of the special features of the Kelly combination is its accessibility. The valves being placed above the top of the earthen-ware are easily reached and the life of the combination is placed at from 15 to 25 years. The Kellys claim to be the original inventors of the closed tank installation. Descriptive literature has been prepared in the form of a special 1911 catalog, which faithfully portrays and describes the principal features of the Kelly products. This can be obtained upon request by any of our readers. Kindly mention "Domestic Engineering" when writing.

BUSINESS VENTURES AND CHANGES.

Estevan, N. Dak.—Elmer McGraw has opened a plumbing establishment and a garage.

Spirit Lake, Ia.—D. B. Roreback and Don Stokes have formed a partnership and are prepared to do plumbing, steam-fitting and hot-water heating.

Watseka, Ill.—A. E. Post has opened a plumbing and steam-fitting shop.

Wenatchee, Wash.—The business of the Columbia Plumbing Co., J. A. Farms, manager, has been purchased by J. P. Fisher and W. J. Hughes, who will continue it under the same name. The new owners are both well known in Wenatchee, having been employed there for several years.

Canby, Minn.—H. F. Fickbohm has transferred his plumbing department to his partner, H. C. Ohlsen, and will devote his entire attention to his blacksmithing work.

THE "CENCO" EXPANSION TANK BRACKET.

C. Erwin Norman & Co., Chicago, makers of the "Cenco" heating specialties, are putting on the market a bracket for supporting expansion tanks which is admirably suited for the purpose. The steam-fitter who has been obliged to hunt up a board the right size, and combine it with a couple of ordinary shelf-brackets to support the tank he is installing, or else hang up the tank on pipes, never a thoroughly reliable method, will welcome the "Cenco" bracket, which is all ready for use with the least possible expenditure of time and trouble on his part. The man who foots the bills will welcome it, for the "Cenco" is less expensive than either of the substitutes for it just alluded to. Although not intended exclusively for installation in bath-rooms but for any location, the "Cenco" will be especially appreciated by housekeepers who take pride in their up-to-date furnishings because of the finished appearance of the "Cenco" bracket supporting the tank, "just made to go together," as one delighted woman said recently. We illustrate the device, full description of which with price can be obtained upon application to the manufacturers, C. Erwin Norman & Co., 29 W. Michigan St., Chicago. When you write, say you read about this in "Domestic Engineering."

The "Cenco" Expansion Bracket.

HERE AND THERE IN THE PLUMBING TRADE.

Duluth, Minn.—P. M. Olsen has awarded the contract for heating and plumbing in the F. G. and C. G. Millen building on Third street to Stack Bros. and for the electric work to the Burgess Electric Co.

Aurora, Ill.—The Fred Smith Co., of Geneva, has received the contract to install a $1,000 steam-heating plant in the Swedish Lutheran church, and work will be begun at once.

Muskegon, Mich.—The board of education recently awarded the contract for installing a heating system in the McLaughlin school to J. J. Howden & Co. The contract amounts to $3,500.

Dickenson, N. Dak.—The Smith Plumbing & Heating Co. has just finished the plumbing and will now install a steam-heating plant in J. E. Dryer's home on Second avenue.

Bushnell, Ill.—The board of education has awarded to Conger & Newton, of Macomb, the contract for fittings in the toilet rooms of two schools. Twelve closets are to be installed in one building and 10 in the other, with a urinal and two lavatories in each school. Five bids were submitted, that of Conger & Newton for $2,067 being the lowest.

Fort Dodge, Ia.—The city commission recently passed the long-discussed plumbing ordinance. It provides for the appointment of a plumbing and building inspector, and requires every plumber to obtain a license.

Butte, Mont.—G. E. George, secretary and treasurer of the Eschle Plumbing & Heating Co., 51 E. Broadway, has purchased the interest in that firm formerly held by F. A. Sutton. The company has a number of large contracts in hand and report good prospects for the future.—The Krueger Plumbing & Heating Co. has been awarded the contract for installing a complete plumbing system in the county court-house, amounting to about $16,000.

THE METAL MARKET

FOUNDRY IRON IN BETTER DEMAND.

Several notable sales have been made of foundry iron during the past week, one of them 9,000 tons of Northern and Southern foundry to the Standard Sanitary Mfg. Co. A pipe manufacturer also took 10,000 tons. As has been noted in these reports for several weeks, the foundry iron interests have not been buying iron with the activity displayed by the steel makers and this belated buying is not enough as yet to even up the market. The United States Steel Corporation is operating to about 77 per cent of capacity and the independent steel makers to about 63 per cent. A feature of the week's business has been the increased buying of rolling stock by the railways. Prices of iron are as follows:

No. 2 Southern foundry, Birmingham	$10.00	to	$10.25
No. 1 Northern foundry, New York	15.50	to	15.75
No. 2X Northern foundry, New York	15.00	to	15.50
No. 2 plain, Northern foundry, New York	14.75	to	15.00
No. 2 Northern foundry, Chicago	14.50	to	15.00

OLD IRON.

The demand for iron continues small and foundry stock is apparently a drug on the market. Quotations are as follows:

No. 1 yard wrought, long	$10.50	to	$10.75
No. 1 yard wrought, short	10.75	to	11.25
Heavy-melting steel scrap	10.75	to	11.25
Machinery cast	10.75	to	11.25
Wrought pipes and tubes	10.50	to	10.75
Malleable castings	10.50	to	11.00
Wrought turnings	7.25	to	7.75
Cast borings	5.75	to	6.25
Stove plate	8.50	to	9.00
Light iron	4.50	to	5.00

LEAD.

The market continues strong in New York with lead only five points above the St. Louis price at 4.50 cents. The demand is better than a month ago.

COPPER TRADE QUIET.

Consumers of copper are reluctant to purchase at prevailing quotations and even the shading of the price of electrolytic 2½ to 7½ points failed to bring buyers. The extent of the strike in Great Britain is being watched with a great deal of interest by the copper producers, for should this prevail for any length of time it will mean a serious reduction in the amount of copper consumed by foreign interests.

A MARKED SCARCITY OF TIN.

The closeness with which the industries in this part of the world are bound up with those of another is seldom more forcibly illustrated than in the marked scarcity of tin in New York, which is now prevailing. Tin is selling at a premium of 4 to 6 cents per pound over the price of futures, as for example, spot tin is quoted at 46 to 47 cents, September tin at 42½ to 43¾ cents and October tin at 41½ to 41¾ cents. The last large cargo of tin to arrive from London came on the "Minnetonka," which brought 1,140 tons. Since then no shipments of importance have been received from London and none by the Atlantic Transport Line, which carries most of the tin. This is because of the dock strike in London, which prevents unloading of eastern steamers or the loading of tin on steamers for America. To bring the metal on direct steamers from the Far East would involve too much time, as these are much slower than the steamers direct to London. Happily, the prospects are for an early settlement of this strike and the fact that the strike has become general leads to the belief that it will be only a few days before the entire matter is satisfactorily adjusted. The arrivals so far this month aggregate 2,183 tons and there are afloat for American ports only 1,400 tons, so the probabilities are that more tin will be consumed this month than imported.

SPELTER.

Prices have advanced steadily and spelter is sold as high as 6.20 cents New York, the highest figure this year and higher than any time since the 1907 panic, except the boom in November and December of 1909 and January, 1910. In St. Louis spelter can be had at 6 cents. The reason for the rapid advance in price is the unsatisfactory supply of labor in the Joplin ore district.

NEWS FROM OHIO.

Columbus, O.—The Columbus Heating & Ventilating Co. has been awarded the contract for installing the heating and ventilating systems in the high-school building at Van Wert, O., and also in a school building to be erected at Bremen, O.

Magnolia, O.—A vote will be taken in the near future on the proposition of issuing $10,000 bonds for the purpose of building a water-works system for the town.

New Bremen, O.—The contract for the construction of a sewage-disposal plant has been awarded to Howell & Wentz, of Wapakoneta, O., at $2,890.

NEWS FROM WISCONSIN.

Kenosha, Wis.—Plumbers here and throughout the state are preparing for another court attack on the lien law. They consider that it injures honest contractors because it allows irresponsible men to bid on the jobs and get the work by giving low figures.

Waukesha, Wis.—Alex. G. Haynes, a well known master plumber, was married on August 16th to Miss Laura Boyd, at the home of the bride's parents, Mr. and Mrs. David Boyd, on White Rock avenue.

Tomah, Wis.—An entire new heating plant in the Indian school here has been recommended by the government supervisor of the heating of buildings in the Indian service, Robert M. Pringle. The work should be done before the opening of school this fall. The present system is hot-air heating and, on account of the dryness, it has been very unsatisfactory. A practical system of ventilation is also recommended by Mr. Pringle, to be installed at the same time.

Eau Claire, Wis.—The master plumbers of Eau Claire, Chippewa Falls, Menomonie, Rice Lake and Bloomer united in a joint picnic at Irvine Park on August 13th. A hotly contested baseball game between the Eau Claire and the Chippewa Falls teams was a feature of the day. At the end of the fourth inning the score was 3 to 0 in favor of the Chippewa Falls men, but the Eau Claire plumbers worked hard and succeeded in reversing the lead so that at the end the score was 9 to 5 in their favor. After the game a delightful supper was served, and the picnic was voted one of the best ever held.

NEW ENGLAND NOTES.

Massachusetts.

Newburyport.—All of the bids recently received for installing a steam-heating system in the Curtis school building have been rejected, the figures of the lowest bidders, the Hub Plumbing & Heating Co., being more than double the amount available for the work.

Boston.—The union plumbers have voted not to strike to enforce their demands for an increase in the daily wage from $4.40 to $5.20. Instead a compromise has been reached by which the men are to continue at the old scale until January 1st, and thereafter receive $4.80 per day.

Pittsfield.—Robbins & Gamwell have been awarded the contract for installing a steam-heating plant in the magnificent new house which is being erected on South street for Charles W. Power.

Westfield.—Much complaint is heard over the repeated infraction of the plumbing by-laws by local workmen and others. The selectmen have found many instances where sewers have been connected and other work done without a permit from the town and are preparing to take court action in such cases in the future.

Chelsea.—Bids have been received by the board of control for work on the new Shurtleff school group and the contracts for plumbing, heating and ventilating have been awarded as follows: Plumbing, A. L. Ruggles, Chelsea, $5,425; heating and ventilating, Huey Bros., Boston, $16,987.

Ayer.—R. G. Harrington has been awarded the contract for the heating and plumbing in the new Ware National Bank at Ware, Mass.

Somerville.—E. W. Palmer is now well established in the plumbing business in a new two-story building at the corner of Boston avenue and Warner street, West Somerville.

Gardner.—John R. Carey has been awarded the contract for the plumbing in the new Finnish Workingmen's Building on Ash street.

Great Barrington.—Contracts for plumbing and heating in the new parish house of St. James parish have just been placed. Robbins & Gamwell of Pittsfield have the heating contract and James McManus of this town that for plumbing.

Amherst.—The plumbing in Prof. W. J. Newlin's house on Sunset avenue will be done by Allen, Woodward & Co., the contract having just been awarded.

Worcester.—Bids have been asked by the trustees of the Worcester state asylum for the erection, plumbing, heating and wiring of two new buildings at the Grafton colony, bids to be made separately and to be delivered at the office of the architects, 44 Front St.

Newburyport.—The Hub Plumbing & Heating Co. is installing an extensive plumbing system in the new shoe factory being erected by the Newburyport Building Association. Each of the five stories of the building is to be supplied with two immense sinks and four toilets. On the street floor, in addition, there will be two lavatories containing wash-bowls and closets.

Lenox.—Richard O'Brien has been awarded the contract for plumbing and W. B. Bull that for heating, for the new St. Ann's church.

Maine.

Bangor.—Denno Nadeau has taken the contract to heat and plumb the new four-story block which is being erected for the Dunn Furniture Co., at Presque Isle. Work on the building is already under way.

Vermont.

Enosburg Falls.—The St. Albans Heating & Plumbing Co., of St. Albans, has the contract for installing a steam heating system at the Quincy House. The contract is an extensive one.

Connecticut.

Hartford.—A committee has been named to take steps toward the erection by the city of a public-comfort station. The site has not yet been settled upon.

Norwich.—The master plumbers have as yet been unable to reach an agreement with the journeymen who have been on strike for some time past, although several conferences have been held.

Rhode Island.

Woonsocket.—The plumbers of this city are organizing and expect to put in a demand for a new scale of wages by Sept. 1st.

MILWAUKEE NEWS.

The ordinance providing for the consolidation of the plumber and sewer inspection departments has been deferred for two weeks by the council waterworks committee, when final action will be taken. There is no dissatisfaction among the local plumbers over the ordinance, but they feel that the drain inspectors should be abolished and, in their stead, five more plumbers should be chosen to work with the seven now employed. The ordinance will create the following offices and salaries per month: Superintendent of plumbing and house-drain laying, $150; deputy superintendent, $125; eight drain inspectors, $100 each.

The recently completed public-comfort station on the Sixth street viaduct, erected at a cost of $1,900, was opened on August 21st. The city administration was much disappointed when the bids for concessions in the new station were opened. It was expected that for the privilege of operating the news, candy, cigar and shoeshining stands and furnishing towel service, bidders would offer from $50 to $100 per month, but instead of such figures it was found that one bidder asked $25 per month for supervising the station, and the other two wanted $15 each. Bidders contend that as the ordinance requires articles to be sold at fixed prices, they cannot make any profit and should be paid for the care of the station.

Architect A. C. Eschweiler is preparing plans for the administration, agriculture and horticulture buildings to be erected in Wauwatosa by the county. A steam-heating plant will be put in.—The heating plant for the Gottschalk Co.'s flat will be installed by R. J. Schwab and the plumbing by D. Polacheck. Leiser & Holst are the architects.—Architect S. P. Kadow has let the plumbing and heating contract for the remodeling of Martin Franzkowiak's home to the Western Plumbing & Heating Co.—Architects Betts & Hosmer have let heating and plumbing contracts for the residence of George M. Maxson to Frank Mueller, of Wauwatosa.—Jacob Groeschel will install the heating plant in T. J. McCarthy's residence. Hugo V. Miller is the architect.—Architect H. J. Rotier has awarded the plumbing for Mr. Livingston's residence to M. Mueller.—The board of public works has awarded the contracts for the new isolation hospital. The Downey Heating Co. will install the heating and ventilation for $6,100 and Joseph Witting will do the plumbing sewerage and gas-fitting for $5,950.—John L. Hahn will do the plumbing for the new Wisconsin Savings Bank. Architect Tharinger let the contracts. He has also let the plumbing contracts for Frank Smitka's residence to Spear & Fuller.—Architects Brust, Philipp & Heimerl have let the heating and plumbing contracts to Grassler & Gezelschap for the St. Mary's sanitarium.—Architect A. Hood has let contracts on flat building for W. J. Kalitzky. Heating goes to Industrial Heating Co. and the plumbing to the Standard Plumbing Co.

Supt. Jay Z. Greeley of the garbage incinerator has gone to Europe, where he will inspect noted European garbage and sewage-disposal plants. He will visit Essen, Germany, where Prof. Carl Imhoff has built a sewage-disposal plant which has attracted world-wide attention. He will also visit Bremen, Germany, where there is a new garbage incinerator, and Paris, where he will study the garbage collection and disposal system.

Boston Master Plumbers' Annual Outing a Great Success

Plumbing business in Greater Boston was at a standstill on Wednesday, August 16th, for on that day was held the annual outing and shore dinner of the Master Plumbers' Association of Boston and vicinity, and no less than 250 master plumbers and salesmen, many accompanied by ladies, were in attendance. The outing was held at Bass Point, Nahant, with dinner at the Bass Point House.

Many of the plumbers made a day of it at Bass Point, going down on the early boat in the morning and remaining until the last boat back at night, and, sad to relate, there were those who even missed the last boat, and were obliged to wend their way homeward by trolley, a long and tedious journey.

The trip from Boston was made by the regular Bass Point boat-line and tickets were good going any time during the forenoon, so that by noon the entire company was on hand and a hungry lot it was. Those who had gone down early in the forenoon indulged in a baseball game before dinner and it was a game well worth seeing.

Vice-Pres. P. J. Sullivan headed a team of master plumbers and John P. Drury was captain of the salesmen's nine. Five innings were played and at the end Drury claimed a victory for his side by a score of 17 to 4. His claim was disputed and it is still an unsettled question as to just what the score was or who won. F. N. McIntyre, who umpired the game, refused to be interviewed.

The dinner was a full-course fish-dinner such as only Bass Point can produce and there was not one of the number but who did it full justice. Pres. James S. Cassedy presided, as far as there was any presiding to do, but speaking was dispensed with and the whole time was given over to the enjoyment of the repast. Richard Welch, of Lowell, the new president of the state association, with Mrs. Welch, was the special guest of the day, and they occupied seats near President Cassedy.

After the dinner there was an elaborate program of sports arranged for men, women and children, in which the winners were as follows:

Wheelbarrow race for men and women; won by Mrs. Carl Flint. Prize, Gem bubbler, presented by E. B. Badger & Co.

Three-legged race: won by W. D. Verry and P. J. Maher. Prize, cigars.

Hundred-yard dash for boys; won by Leo Ahern. Prize, pocket-knife.

Jardiniere contest; won by Mrs. James S. Cassedy. Prize, hammered brass jardiniere.

Fifty-yard dash for girls; won by Anna Lenehan. Prize, hat-pin.

Hundred-yard dash for master plumbers; won by L. P. Bresnahan. Prize, scarf-pin.

Hundred-yard dash for supply-men; won by C. F. Flint. Prize, scarf-pin.

Brace and bit contest; won by L. P. Bresnahan.

This contest furnished the most fun of any. It consisted of supplying each contestant with a brace and bit and after blind-folding him and turning him around a few times, starting him off in the direction of a big target painted on the side of the building. The one boring nearest the center of the target was pronounced the winner. Joe Larraway, Watertown, insisted that he had been treated unfairly and amid the hoots of the audience he challenged Bresnahan to a championship match. Bresnahan accepted but before the terms could be agreed upon something came up and so the brace and bit championship is still to be decided.

After the regular program as arranged by the committee had been completed, the members hied themselves off to bowling-alleys, skating-rinks, theaters and other places of amusement about the resort and passed the evening as best suited them. The majority of the party returned to Boston either on the 6:30 or 9:45 boat, but there were a few, as before noted, who had to get home as best they could after missing the last boat. Everybody agreed that it was the most successful as well as the most largely attended outing that the association has ever held.

The committee was composed of Vice-Pres. P. J. Sullivan, chairman; Pres. J. S. Cassedy, Secretary Stevens, Andrew F. Curtin, M. J. Kelly, C. J. Murphy, F. F. Muldowney, P. A. Lang, J. J. Vogel, O. C. Poole, E. W. Cox, J. W. Zerringer, L. W. Bresnahan and W. J. Nason.

The following is a partial list of those present, and the firms they represented:

Boston: John F. Berrigan. Peter J. Lynch, Wm. H. Gallison Co. Frank M. Mills, Globe Foundry Co. Vernon J. Voye, Brown-Wales Co. A. Loewenthal, The Loewenthal Co. Walter P. Jones. G. I. Moriarty. J. Edward Johnson. Fred A. Kelliher, W. H. Gallison Co. G. W. Durkee, Thompson-Durkee Co. John McAuliffe, W. B. Hibbard Co. George Burke, Crane Co. George Bond, Pierce, Butler & Pierce Mfg. Co. C. T. Dorris, M. A. Daniels' Sons Co. Major Knight, Dahlquist Mfg. Co. Frank S. Walsh, Crane Co. W. C. Skulley, Sanitas Mfg. Co. V. L. Louchet, James Barrett Mfg. Co. A. J. Felz. F. F. Muldowney. L. W. Stevens, Stevens Plumbing Co. Daniel Shannon. James A. Kent, jr. A. F. Sawyer, William H. Page Boiler Co. R. W. Cosden, J. W. Cosden Co. A. O. Weld, George A. Weld Co. Edward S. Phillips and F. V. Streeter, Smith & Anthony Co. Henry F. Fiske and Joseph E. Hodgkins, Jenkins Bros. W. M. Crosby, M. J. Redmond, George L. Bond, E. A. Morris, of Pierce, Butler & Pierce Mfg. Co. Theodore Dahlquist, jr,. Dahlquist Mfg. Co. Arthur L. Hersom. A. W. Chamberlain, The Dececco Co. Mortimer A. Carder. C. T. Flint, H. B. Smith Co. O. C. Poole. E. C. Flynn, William H. Mitchell & Sons Co. P. J. Doherty. H. E. Stockbridge. E. L. Smith and Geo. W. Austin, E. L. Smith Co. H. W. Hunt, Braman Dow Co. A. Dvilinsky, Dvilinsky Bros. A. A. Thompson, Thompson & Spear Co. H. A. Jack, Mott Iron Works. C. W. Holt, George H. Aver, W. A. Richardson, M. A. Holland, C. W. Lanagan, J. J. Nagle, A. D. Brackett, Miss Bessie Saunders, John P. Drury, Michael Roughan, P. A. Lang and D. W. Gorman, F. W. Webb Mfg. Co. Thomas F. Martin. S. Morse, Morse Bros. R. Estabrook and Alexander W. Rich, R. Estabrook & Sons. F. J. Campbell, Union Soapstone Co. Daniel P. Sullivan, jr., Paul Sullivan and Francis L. Daly, Sullivan & Daly Co. P. J. O'Brien, James Barrett Mfg. Co. C. W. Cahalan. George F. Perry, J. P. Perry & Co. W. A. Belcher and John C. Matthews, Joseph H. Young Co. George E. O'Brian. B. F. Godfrey, B. F. Godfrey & Co. H. W. Driscoll. R. H. Carter, Alberene Stone Co. O. F. Chellis and H. N. Libbey, Dalton-Ingersoll Co. C. A. Bray, C. A. Bray Co. D. J. Perrin, George E. Gilchrist Co. Michael Ahern and Leo Ahern, M. Ahern. Edwin W. Cox, Pierce & Cox. John W. Cosden. J. J. Vogel and George W. Vogel, J. P. Vogel & Sons. David Craig. William Walsh. K. Palmer, D. W. Palmer. Frank H. Locke, Locke, Stevens & Co. Albert E. Touchet. J. C. Kelly. John J. Hickey.

Ashmount: Charles Grosse. Brighton: J. O. Connell. Brockton: V. R. Donovan, V. R. Donovan & Co. Cambridge: James S. Cassedy. Dorchester: M. W. Gillespie, J. W. Gillespie; D. W. Nichols, Nichols & Young; Samuel E. Taylor. East Boston: Daniel J. Duggan. Forest Hills: Thomas C. Kelly, Thomas C. Kelly & Co. Lowell: Richard J. Welch, Welch Brothers. Malden: Frank B. Connor.

Medford: L. E. Morrison, L. P. Bresnahan, M. H. McCusker; Andrew F. Curtin and John F. Regan, Page & Curtin. Melrose: Thomas E. Sharpe. Milton: B. F. Murray.

Nahant: Daniel G. Finnerty, F. C. Shaughnessey. Neponset: John P. Riley, John H. Riley Co.

Roxbury: Kelley & Godfrey, P. J. Sullivan, John K. Tulley, Daniel J. Cole, F. J. Callan, Edward C. Kelly, Philip L. McMahon, O. C. Wells & Co.

Watertown: Thomas B. Wishart, Inspector of Plumbing, J. A. Larraway, D. F. Keefe. Winthrop: P. A. Dolan, James Barrett Co.

Providence, R. I.: J. E. Coudelette. New York: George A. Caldwell, The H. Mueller Mfg. Co.

Valuable Dog.

Herr Langbart—"A very intelligent puppy, that."

Herr Grosspaunch—"Ach! Does he not bark at the letter carrier like a common cur?"

Herr Langhart—"Aber he barks at the letter carrier only on the first of the month!"—Buffalo Express.

PACIFIC COAST LETTER

San Francisco.

Although it has been but three weeks since the settlement of the Panama-Pacific International Exposition site question, a great deal of work in the building line is already under way by private parties as a direct result of the solution of the problem. Plans for much important work had been made previously but work on various projects had been held up until it could be seen just where the great event was to be held. A great deal of construction work is now under way and plumbers are figuring on more large work than has been the case in many months past, in spite of the fact that the first six months of the year have been very active ones for builders. Permits for the month of July approached the $3,000,000 mark and this figure will probably be exceeded during some of the fall months. Just now hotel work is again coming to the front and a number of important structures of this kind will soon be in course of erection. Many small hotels are now being built, notably on Kearny street and in the South of Market street district, but many more are being planned for these localities. Just now the municipal elections are occupying considerable attention and some builders are waiting until these are over before proceeding with improvement projects. The general belief is that a change in administration is at hand, and this is very encouraging to property owners, many of whom absolutely refuse to improve their properties with political affairs in their present shape. Among the important buildings upon which work will be commenced after election will be the John Martin Hotel on Sutter street, the additions to the Palace and St. Francis hotels and the improvement of the old Occidental Hotel property on Montgomery street. Work is now commencing on the Terminal Hotel on lower Market street and the finishing work is now under way on the Sutter Hotel at Sutter and Kearny streets. The local plumbing trade is now quite active and the large shops are securing much more work than they did a short time ago, when residence-work was the leading feature of building operations here. The outlook is very promising and several of the big shops are enlarging their facilities in anticipation of an extremely active building season in the near future.

William Snook & Son have just been awarded the contract for the installation of the plumbing, gas-fitting and drainage in the building being erected at Franklin and California streets by the First Church of Christ, Scientist. This contract is valued at slightly under $2,000.

The John G. Sutton Co. has been awarded the contract for the installation of the heating and ventilating system in the residence being erected by A. B. Spreckels at Octavia and Washington streets, this contract being valued at $3,940.

The Central Plumbing Co., which has for some time been located at 1439 Market St., has taken additional room and is now occupying the corner-store as well, about double the former space now being used to accommodate the growing business.

During the past couple of months a great many temporary buildings have been torn down and the supply of second-hand plumbing material is again quite heavy here. The number of these temporary buildings is rapidly becoming smaller and in a short time but a normal amount of second-hand material will be offered for sale here. The plumbing supply trade would welcome the enforcement of an ordinance making obligatory the removal of shacks erected following the fire.

The J. Looney Co., recently incorporated here with a capital stock of $50,000, has secured the contract for the plumbing, gas-fitting, sewering and fire-protection work in the concrete building being erected by the Civic Land Co. at Jackson street and the Embarcadero, the consideration mentioned being $5,400.

The Atlas Heating & Ventilating Co. is shortly to have a fine new shop-building in the downtown district on a side street, just off Fourth, contracts for the erection of the structure having already been let.

Elsewhere on the Coast.

Fillmore, Cal.—Bruce McElhaney, formerly in business at Los Angeles, has moved here and has opened a shop.

Los Angeles, Cal.—Contracts will be awarded shortly for the installation of the plumbing, gas fitting and heating system in the new cafetaria and oral expression hall of the high school.

Tracy, Cal.—Bids for the installation of the heating system in the new grammar-school building being erected were submitted by Morgan & Co., Robert Dalziel, Pacific Heater & Blower Co., J. C. Hurley and Brandt Bros. The latter firm was awarded the contract on its bid of $1,900, and will commence work at once.

Portland, Ore.—The Oregon Heating Co. has been incorporated with a capital stock of $50,000 by M. B. Meacham, D. J. King and B. M. Hurst.

Corvallis, Ore.—The Mechanic Arts Building will be opened for use shortly and instruction will be given in plumbing and other branches of the building trade. The plumbing-shop is particularly well equipped.

Odessa, Wash.—The Odessa Hardware & Implement Co. has been awarded the contract for the installation of the heating plant in the new school building in course of erection, the contract being valued at $3,637.18.

LOS ANGELES NEWS.

On the evening of August 7th, a most successful "get-together" smoker was held by the Los Angeles master plumbers. Over 150 members were in attendance. There were plenty of things spiritual and material, and after the smoke of battle had cleared away it was unanimously voted to have been the best entertainment of its kind on record.

A noticeable feature of the building industry here is the increasing number of apartment and rooming-houses being built. Never in the history of Los Angeles has there been anything approaching the present boom in apartment-houses.

Howe Bros. have secured the contract for plumbing the new 10-story Union Oil building, corner 7th and Spring streets. This will have 650 fixtures.

W. H. Cain will install 150 fixtures at 336 S. Flower St.

J. Hokom has secured the plumbing contract, consisting of 350 fixtures, for Orena & Rickard at 612 S. Flower St.

Kroeger Bros. will install 42 plumbing fixtures at 2611 Vallejo St.

The Babcock Plumbing Co. has taken out a permit to install 81 fixtures in the Whelan building at 509 Maple Ave.

W. A. Merrick will install 111 fixtures in the Hurlburt building at 1336 Shatto St.

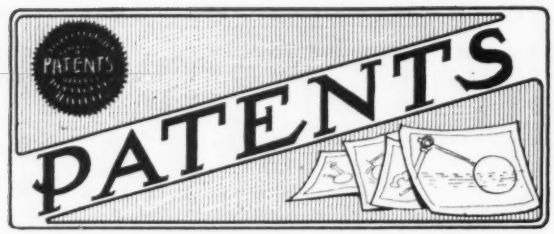
C. F. Sheffield has a contract for 329 fixtures for Kern & Schaefer at 840 S. Hope St.

Swinnerton Bros. have a contract for 57 fixtures at 226 N. Olive St. for the Larquist building.

CONTRACTS AWARDED.

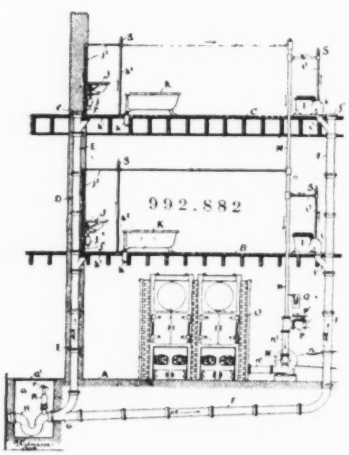
Bloomington, Ind.—Dan. V. Mack has been awarded the contract for plumbing in the new Rogers-Mefford building, amounting to about $1,600.

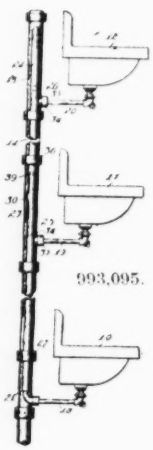
Marlette, Mich.—R. A. Nicholl has recently secured several contracts for heating and plumbing jobs. Fred Redmond will have a steam-heating plant installed in his home, as will also R. W. Cooley. A complete plumbing and steam-heating outfit will go into the new home of Berthold Bopp and Mrs. Thos. Fitch will have a bathroom added to her home. Mr. Nicholl has also placed a new steam-boiler in the McGill home. He will install a combined hot-water heater for mild weather in the home of C. L. Gage. One of the biggest of the jobs for which he secured contracts is the installation of a steam-heating system in the State Savings bank and in the office of Dr. E. W. Sanford.



Plumbing Department.

992,882. Ventilation System for Soil and Waste Pipes. Alvin P. Kletzsch, Milwaukee, Wis. Ventilation-means for waste-pipe systems comprising, in combination with the waste-pipe and one or more fixtures connected thereto by branch-pipes, said waste-pipe being closed at the top and having an air-inlet at the bottom, air-pipes connected to said branch-pipes, and means for producing a vacuum in said air-pipe or pipes whereby a current of air is drawn through said inlet, upwardly through said waste-pipe into said branch-pipe or pipes and out through said air-pipe or pipes.





993,095. Plumbing System. Gustaf Albin Nilson, Chicago, Ill. In a plumbing system in combination, vertical waste and vent pipes, an intermediate vertical pipe having walls separated from the walls of the said vertical waste- and vent-pipe and having an opening at its lower end for receiving the drain from a sink or like fixture, the connections between the intermediate pipe and the waste and vent-pipes, the connection between the intermediate pipe and the waste-pipe being at a lower level than the connection between the intermediate pipe and the vent-pipe and at a higher level than the said opening in the intermediate pipe for receiving the drain from a sink or like fixture.

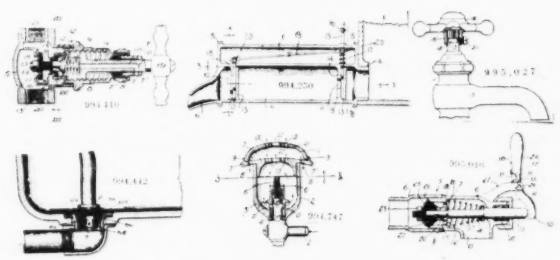
994,110. Stop and Waste-Cock. John M. Beggs, Crafton, Pa. In a stop and waste-cock, a casing having inlet and outlet circulation passages and a waste outlet therein, a valve seat, a valve-stem having a passage therein for communicating with said outlet opening a dependent member carried by the valve-stem and movable relatively thereto and having oppositely disposed parts for operating upon the valve seat and upon the valve-stem respectively to close the valve and the passage in the valve-stem by the operation of the valve-stem.

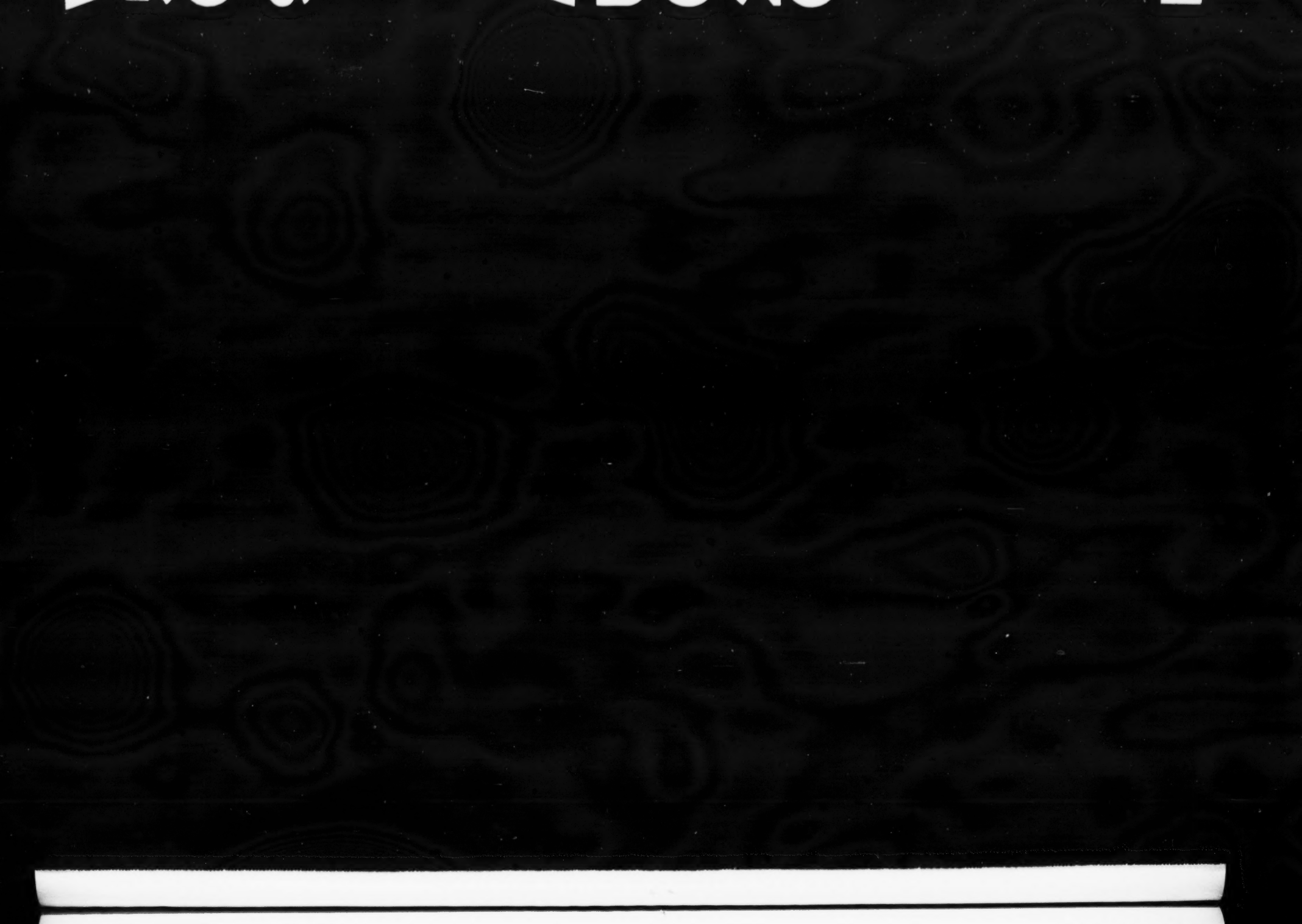
994,250. Liquid-Soap Container. Logan Alfred Dils, Centralia, Wash., assignor of one-half to Allen A. Miller, Centralia, Wash. In a device of the character described, a container having formed therein a filling opening, said container having a flat rear side adapted to fit close against a wall or other support, a combined measuring and dispensing mechanism comprising a measuring tube, a spout formed on the outer end of said tube, a chamber arranged on the upper end thereof, said tube, spout and chamber being formed in separate longitudinal sections, a packing ring between said sections, apertured partitions arranged in said measuring tube and spaced a suitable distance apart to form a measuring compartment of the desired size, a measuring valve arranged in one end of said tube, a discharge valve arranged in the opposite end thereof, an operating stem connected with said measuring valve and projecting upwardly through the chamber above said measuring tube, a spring arranged on said stem to open and normally hold said measuring valve in open position, a valve operating lever pivotally mounted in said chamber and having a loose connection at its opposite ends with the stem of said measuring valve and with the upwardly projecting end of the discharge valve whereby when said measuring valve is depressed to a closed position said discharge valve will be simultaneously opened to permit the discharge of the liquid contained in said measuring chamber.

995,027. Handle for Cocks, Faucets, and Valves. Philip Mueller, Decatur, Ill., assignor to the H. Mueller Manufacturing Co., Decatur, Ill., a corporation of Illinois. In a valve, a fixed valve seat, a movable valve disk, a stem therefor whose angular position is changed by wear on the movable member, an opening handle on the stem, an index on the handle which should occupy a defined normal position with respect to the fixed member when the valve is closed, means comprising registering corrugations on the handle and stem respectively for locking the handle in any one of a number of adjusted positions, a peripheral groove on the stem adjoining the lower end of the corrugations and into which the corrugations extend, and means on the handle engaging in the groove to prevent removal of the handle from the stem.

994,442. Drain-Pipe Plug and Flushing-Nozzle. William A. Coles, Canton, O., assignor of one-half to Ulysses A. Breting, Canton, O. A nozzle for flushing drain-pipes made of resilient material and formed in sections of different sized truncated cones, the lower end of the larger section forming a shoulder around the upper end of the smaller section, and a shoulder being formed around the larger end of the upper section, there being n axial aperture in the nozzle provided with a screw thread adapted to receive a hose-fitting or a screw-cap.

994,747. Drinking-Faucet. Joseph P. Heeney, East St. Louis, Ill., assignor to M. H. Foundry & Manufacturing Co., Belleville, Ill., a corporation of Illinois. A drinking-faucet comprising a hollow member having an inlet or intake opening at one end, a chamber at the opposite end provided with an inner central large opening and a series of small openings encircling the large opening for establishing communication with the hollow member, and provided with a corresponding outer series of large and



small discharge openings in the path of the streams passing through the inner openings, said discharge openings directing the water in a direction from the intake to the hollow member, the chamber being provided with relief openings out of range of the path of the streams passing through the inner openings into the chamber, said relief openings discharging toward the intake to the hollow member.

995,016. Faucet. Harry P. Julius, St. Louis, Mo. In a faucet, a casing having an arm projecting therefrom and provided with a toothed segment, a plunger-rod operating in the casing and having a valve, one end of said plunger projecting from the same end of the casing as said arm, a spring to close said valve normally, a lever mounted on said arm and engaging said plunger-rod, to open the valve and a dog carried by said lever and co-acting with said segment to hold the valve open.